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SECRETARY OF THE AIR FORCE**

**AIR FORCE MANUAL 11-2C-130J
Volume 3**



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Flying Operations

C-130J OPERATIONS PROCEDURES

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This instruction implements Air Force Policy Directive (AFPD) 11-2, *Aircrew Operations*, and supports Air Force Instruction (AFI) 11-200, *Aircrew Training, Standardization/Evaluation, and General Operations Structure*, and AFMAN 11-202, Vol 3, *General Flight Rules*, by establishing specific guidance for the operation of the C-130J aircraft. This is a specialized publication intended for use by Airmen who have graduated from technical training related to this publication. This instruction applies to all commanders, operations supervisors, and aircrew assigned or attached to all flying activities of commands operating C-130J aircraft. This publication is applicable to the Air Force Reserve and Air National Guard. This publication does not apply to the United States Space Force. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF Forms 847 from the field through the appropriate functional chain of command. This publication may be supplemented at any level, but all Supplements must be routed to the OPR of this publication for coordination prior to certification and approval. The authorities to waive wing/unit level requirements in this publication are identified with a Tier ("T-0, T-1, T-2, T-3") number following the compliance statement. See DAFI 33-360, *Publications and Forms Management*, for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, to the requestors commander for non-tiered compliance items. Ensure that all records generated as a result of processes prescribed in this publication adhere to Air Force Instruction 33-322, *Records Management and Information Governance Program*, and are disposed of in accordance with the Air Force Records Disposition Schedule which is located in the Air Force

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SUMMARY OF CHANGES

This document has been substantially revised and needs to be completely reviewed. Major changes include incorporation of stabilized approach criteria and multiple Flight Crew Information Files (FCIF)s. Several chapters have been removed and placed in the AFMAN 11-202V3 and applicable supplements. Revision of waiver system to include AF Tiered waiver system (**paragraph 1.3**). Landing Gear and Flap Operating guidance operating procedures changed via guidance memorandum have been incorporated. Expanded maximum effort procedural guidance. Added block 8.1 information.

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Chapter 1

GENERAL INFORMATION

1.1. General.

1.1.1. This manual provides guidance for operating the C-130J. It is an original source document for many areas, but for efficiency reaffirms information found in aircraft flight manuals, flight information publications (FLIP), and other Air Force directives. When guidance in this AFMAN conflicts with another source document, that document takes precedence. For matters where this AFMAN is the source document, waiver authority is in accordance with (IAW) **paragraph 1.3**. For matters where this AFMAN repeats information in another document, follow waiver authority outlined in the source document.

1.1.2. Unit commanders and agency directors, to include transportation and base operations passenger manifesting agencies involved with or supporting C-130J operations shall ensure appropriate personnel are familiar with the guidance within this AFMAN. **(T-3)**

1.2. Key Words Explained.

1.2.1. “Will”, “Shall”, and “Must” indicate a mandatory requirement.

1.2.2. “Should” indicates a preferred, but not mandatory, method of accomplishment.

1.2.3. “May” indicates an acceptable or suggested means of accomplishment.

1.2.4. “**NOTE**” indicates operating procedures, techniques, etc., considered essential to emphasize. “**Note**” is used to explain or highlight information.

1.2.5. “**CAUTION**” indicates operating procedures, techniques, etc., which could result in damage to equipment if not carefully followed.

1.2.6. “**WARNING**” indicates operating procedures, techniques, etc., which could result in personal injury or loss of life if not carefully followed.

1.3. Deviations and Waivers. Do not deviate from policies in this AFMAN except when the situation demands immediate action to ensure safety. The Pilot in Command (PIC) is vested with ultimate mission authority and responsible for each course of action they choose to take.

1.3.1. Deviations. The PIC shall report deviations or exceptions taken without a waiver through command channels to the Chief, Major Command (MAJCOM) Standardization/Evaluation (Stan/Eval), who in turn shall notify Chief, AMC Stan/Eval (lead command) as appropriate for follow-on action. **(T-2)**

1.3.2. Waivers. Directive guidance that requires compliance throughout this manual is tiered IAW DAFI 33-360, *Publications and Forms Management*. Unless otherwise directed (e.g. Tier waiver authority), the waiver authority for non-tiered requirements in this manual is the requestor’s commander (no lower than Sq/CC or equivalent). For aircrews that Change Operational Control (CHOP) to a combatant commander, the COMAFFOR is considered the MAJCOM/CC equivalent.

1.3.2.1. Permanent waivers affecting theater unique circumstances must be approved by, or coordinated through, the MAJCOM/A3 or Deputy. **(T-2)**

1.3.2.2. Long-term waivers affecting multiple aircraft or missions, but which are not permanent in nature, (i.e. expire at a specific date/time) must be approved by the applicable MAJCOM/A3 or Deputy and sent from the appropriate MAJCOM Stan/Eval to AMC Stan/Eval. (T-2)

1.4. Supplemental Procedures. This AFMAN is a basic directive. Each user MAJCOM or operational theater may supplement this AFMAN according to AFD 11-2, *Aircrew Operations* and DAFI 33-360, *Publications and Forms Management*. Stipulate unique MAJCOM procedures (shall not be less restrictive than this basic document) and publish MAJCOM/A3 or Deputy approved permanent waivers in the MAJCOM supplement.

1.4.1. Combined Command Operations. Plan and conduct all operations that include forces from multiple MAJCOMs using provisions in this AFMAN. Do not assume or expect aircrews to perform MAJCOM/Theater unique procedures without obtaining MAJCOM/A3 or Deputy approval and advance training.

1.4.2. Coordination Process. Forward MAJCOM approved supplements (attach AF Form 673, *Air Force Publication/Form Action Request*) to AMC/A3V (Air Mobility Command/Aircrew Standards and Evaluations) for mandatory notification prior to approval. (T-2)

1.5. Local Supplement Coordination Process. Operations Group commanders (OG/CCs) may define local operating procedures to this manual in a unit supplement or locally generated Operating Instruction (OI). OG/CCs shall obtain approval from MAJCOM prior to releasing their supplement or OI. (T-2) Send an electronic copy of the approved version to MAJCOM Stan/Eval. MAJCOM Stan/Eval will send approved copies to AMC/A3V. (T-2)

1.6. Definitions. Find explanations or definitions of terms and abbreviations commonly used in the aviation community in Title 14, Code of Federal Regulations, [Part 1](#), *Definitions and Abbreviations*; Chapter 2; and, *The DoD Dictionary of Military and Associated Terms*, June 2018. See [Attachment 1](#) for common terms used in this manual. BLK 8.1 information applies to all variations of BLK 8.1.X aircraft variations unless otherwise specified.

1.7. Roles and Responsibilities.

1.7.1. Major Command (MAJCOM). MAJCOMs will provide guidance and approve waivers (as required), where specified throughout this instruction.

1.7.2. Pilot in Command (PIC). The PIC is the aircrew member designated by Competent authority, regardless of rank, as being responsible for, and is the final authority for the operation of the aircraft. The PIC will ensure the aircraft is not operated in a careless, reckless, or irresponsible manner that could endanger life or property. (T-3) The PIC will ensure compliance with this publication and the following:

1.7.2.1. HAF, MAJCOM, and Mission Design Series (MDS)-specific guidance

1.7.2.2. Flight Information Publications (FLIP) and Foreign Clearance Guide (FCG)

1.7.2.3. Air Traffic Control (ATC) clearances

1.7.2.4. Notices to Airmen (NOTAMs)

1.7.2.5. Aircraft Technical Orders (TO); and,

1.7.2.6. Combatant Commander instructions and other associated directives.

1.7.3. Aircrew. Individuals designated on the flight authorization are responsible to fulfill specific aeronautical tasks regarding operating USAF aircraft as specified in this AFMAN or by other competent, supplemental authority.

1.8. Aircrew Operational Reports. The reporting requirements in this manual are exempt from licensing IAW AFI 33-324, *The Air Force Information Collections and Reports Management Program*.

Chapter 2

AIRCREW COMPLEMENT/MANAGEMENT

2.1. General. This chapter provides guiding principles to form/manage mobility aircrews. Commanders at all levels shall follow this guidance to form aircrews and to develop aircrew-related work/rest schedules that optimize efficiency of mobility forces engaged in worldwide operations. **(T-3)**

2.2. Aircrew Complement. Squadron Commanders (SQ/CC) shall form aircrews based on fragmentation order/mission directive, Crew Duty Time (CDT) and Flight Duty Period (FDP) requirements, aircrew member qualifications, and other constraints to safely accomplish the mission tasking. **(T-3)** **Table 2.1** summarizes crew position requirements for different crew types. **Exception:** Crew complement for specialized missions (e.g. Modular Airborne Firefighting System) is addressed in the AFMAN 11-2C-130J Vol 3 Addenda A/B covering those missions.

2.2.1. The minimum crew complement is an aircraft commander, flight pilot, and loadmaster. When a mission requires more than one aircrew member at a position, the SQ/CC will determine whether an instructor and Non-Mission Ready (NMR) crewmember meets mission requirements. **(T-3)**

2.2.2. SQ/CCs shall form augmented aircrews for missions planned to take longer than a basic CDT. **(T-3)** Augmenting aircrew members must be current, qualified, and Mission Ready (MR) IAW AFMAN 11-2C-130JV1, *C-130J Aircrew Training*. **(T-3)** **Exception:** An NMR pilot may augment provided the other two pilots are MR Instructor Pilots (IP). An NMR loadmaster may augment provided that there is at least one Instructor Loadmaster (IL) and one Mission Loadmaster (ML). SQ/CC shall augment an aircrew for the full Flight Duty Period (FDP). The commander with mission execution authority (no lower than OG/CC for training missions) may augment aircrews while the mission is in execution. (See AFMAN 11-202V3 and applicable supplements for more on CDT/FDP). **(T-3)**

Table 2.1. Aircrew Complement.

Crew Position	Basic	Augmented	Tactical
Aircraft Commander (AC)	1	2 ¹	1
Flight Pilot	1	1	1
Loadmaster	1 ^{2, 3}	2	2 ⁵

Notes:

1. ACs must be qualified in the appropriate mission to be accomplished. Transfer of Pilot in Command (PIC) duties between qualified ACs will be briefed to the crew.
2. Two loadmasters (LM) may be required, at the unit commander's discretion, depending on mission complexity. Combat or contingency missions with hostilities require two loadmasters.
3. Two LMs or one LM and another qualified crewmember are required if more than 40 passengers are scheduled to be carried (except during unit moves or contingencies). **(T-3)** If mission requirements dictate, the AC may exercise discretion for alternate LM seating.
4. Two LMs are required for all airdrops 14,000 feet MSL and above. **(T-3)**
5. An instructor loadmaster with a student satisfies the two loadmaster requirement for heavy equipment airdrops. Only one loadmaster is required for tactical missions if:
 - a. Personnel or door bundle (<100 lbs.) drops are performed using only one paratroop door.
 - b. High altitude (up to 14,000 feet MSL) non-static line personnel are dropped from the ramp and door, or only one paratroop door is opened.
 - c. Performing Container Delivery System (CDS) or LCLA airdrops.
 - d. Dropping only standard airdrop training bundles (SATBs).
 - e. A no-drop (dry pass) is planned.
 - f. Mission cut contains sufficient ground time to permit one loadmaster to onload or offload cargo.
 - g. Performing a Combat Offload Method A.
 - h. Hot Refuel/Wet Wing Defuel training with no cargo or passengers/Mission Essential Personnel (MEP) (not involved in the operation) onboard.

2.2.3. Tactical Airlift Formation Lead Requirements.

2.2.3.1. Definitions:

2.2.3.1.1. Flight Lead crew: consists of an aircraft commander who is either flight lead certified or is receiving lead upgrade training from an instructor. A flight lead can accomplish mission commander duties, lead multiple element formations, and perform element lead duties in a multiple element formation.

2.2.3.1.2. Deputy Lead crew: a flight lead crew that is ready to assume formation lead duties if the formation lead aborts. A deputy lead is required for formations greater than three aircraft. Deputy lead may fly as the number two aircraft in the first element or may fly as second element lead. If the deputy lead is the second element lead and flight lead falls out, the number two aircraft must depart the formation if not flight lead certified (either single ship or in formation with flight lead) or breakout from the formation and rejoin the formation at the end.

2.2.3.1.3. An element consists of two aircraft. A flight consists of three or more aircraft.

2.2.3.2. Unilateral Visual Meteorological Conditions (VMC) training: No special requirements.

2.2.3.3. Unilateral Instrument Meteorological Conditions (IMC) training and other than unilateral formations:

2.2.3.3.1. Single-element formations. No special requirements.

2.2.3.3.2. Multiple-element formation. A flight lead crew is required in the lead and deputy lead position. A flight consists of at least three positions: lead, deputy lead/element lead and a wingman. If deputy lead aborts after station time, any crew can assume their position with the concurrence of the mission commander. At minimum an element lead crew is required in any element lead position; however, any crew can fly as the last ship of a formation even if it is as flight or element lead position. For multi-flight formations, a deputy lead is only required in the first flight of the formation, the subsequent flights only require a flight lead crew in the lead position. **Exception:** Multiple-element formations consisting of two aircraft (one in the flight lead and one in the element lead positions) may use single-element formation lead criteria.

2.2.4. Night Vision Device (NVD) Aircrew Complements. Normally, an NVD crew will consist of a NVD-certified crewmember in each of the primary crew positions (a crewmember in upgrade supervised by a qualified instructor meets this requirement). **(T-3)** The pilots may use NVDs even if the loadmaster is not NVD current/certified. However, NVD taxi operations requiring the loadmaster to clear the taxi route/wingtip clearance required a current NVD-certified loadmaster to utilize NVDs.

2.2.5. Joint Precision Aerial Delivery System (JPADS)/Improved Container Delivery System (ICDS) Aircrew Complement. JPADS/ICDS crews consist of JPADS certified basic airdrop crew and a PADS Operator (PO). The PO does not have to be MDS qualified but must be a rated airdrop qualified officer. The PO must be JPADS certified. **(T-2)** It is essential the PO receive a thorough Additional Crew Member (ACM) briefing prior to performing duties on aircraft other than their primary MDS.

2.3. Loadmasters. A non-current or unqualified loadmaster may serve as a primary aircrew member on any mission when supervised by a qualified instructor (direct supervision for critical phases of flight). A loadmaster that requires direct supervision does not satisfy the requirements of [Table 2.1](#) unless waived by unit commander or delegated representative (no lower than SQ/DO). For example, if two loadmasters are required and one requires direct supervision, then a third loadmaster that is a qualified instructor is required to provide direct supervision.

2.4. Flight Duty Period/Crew Duty Time. The C-130J sleeping provisions do not provide adequate privacy or noise levels to obtain suitable rest. FDP/CDT limits are IAW AFMAN 11-202V3 and applicable supplements.

2.4.1. The Tactical Duty for the C-130J is 12 hours, or 14 hours if augmented. The SQ/CC or their designated representative may approve an extension of the tactical duty day up to 2 hours for delays occurring after initial takeoff, if requested by the aircrew. **(T-3)** Tactical events are defined as airdrop, visual low-level (day/NVD), formation (visual/ Station Keeping Equipment (SKE)), assault landings/takeoffs, tactical approaches/departures, airfields that are

defensive systems required, landings/takeoffs on an AMP-3/4 configured landing zone, and unimproved runway operations.

2.5. Alerting Procedures.

2.5.1. Aircrew alert time is normally 3+15 hours before scheduled takeoff time (4-hours for airdrop missions). This permits 1 hour for reporting and 2+15 hours for mission preparation (3 hours for airdrop missions). Individual locations may increase or decrease this time depending on specific requirements.

2.5.2. If the mission cannot depart within 4+00 hours of the scheduled takeoff, the PIC may continue the mission after a thorough re-evaluation of all as Operational Risk Management (ORM) factors. The controlling Command and Control (C2) agent will not ask the PIC to accept a takeoff outside of the 4-hour window. The PIC will coordinate with C2 to continue the mission or enter crew rest and establish a legal for alert time. **(T-3)**

Chapter 3

AIRCRAFT OPERATING RESTRICTIONS

3.1. Objective. Redundant systems may allow crews to safely perform some missions when a component/system is degraded. The PIC has the final authority to determine if an aircraft with discrepancies is unable to accomplish the mission. The PIC will ensure a detailed explanation of the discrepancy is entered in the AFTO Form 781A, *Maintenance Discrepancy and Work Document*; and will include the following maintenance identifiers to effectively communicate aircraft status. **(T-3)**

3.1.1. Mission Essential (ME). The PIC will designate an item, system, or subsystem component essential for safe aircraft operation or mission completion as ME. **(T-3)**

3.1.2. Mission Contributing. The PIC will designate an item, system, or subsystem component, which is not currently essential for safe aircraft operation as mission contributing. These discrepancies should be cleared at the earliest opportunity. If circumstances change or mission safety would be compromised, re-designate as ME. Do not delay a mission to clear a mission contributing discrepancy. **(T-3)**

3.1.3. Open Item (OI). The PIC will designate discrepancies not expected to adversely impact the current mission or any subsequent mission as an OI. **(T-3)** These items are normally cleared at home station.

3.2. Minimum Equipment List (MEL) Guidance. The MEL is a pre-launch document that lists the minimum equipment/systems necessary to operate the aircraft. It is impractical to prepare a list that would anticipate all possible combinations of equipment malfunctions and contingent circumstances. A PIC who accepts an aircraft with degraded equipment/systems is not committed to subsequent operations with the same degraded equipment. PICs are not committed to operations with degraded equipment accepted by another PIC.

3.2.1. Account for the possibility of additional failures when accepting aircraft with inoperative systems or components. The MEL is not intended for continued operation over an indefinite period with systems/subsystems inoperative.

3.2.2. All emergency equipment will be installed unless specifically exempted by mission requirements/directives. **(T-3)**

3.2.3. Waiver Guidance. A PIC prepared to operate with a degraded MEL item shall request a waiver through C2 channels. **(T-3)** The PIC shall provide the C2 agent: 1) nature of request, 2) individual crew member qualification, 3) mission leg(s) requiring the waiver, 4) weather or other adverse conditions, and 5) the governing directive of waiver request to include volume, chapter, and paragraph. **(T-3)** Initiate waiver requests as soon as possible; plan for waiver processing to take at least one hour.

3.2.4. PICs operating with waiver(s) for degraded equipment shall coordinate mission requirements (e.g., revised departure times, fuel requirements, maintenance requirements, etc.) with the controlling C2 agency. **(T-3)**

3.2.5. If beyond C2 communication capability, or when it is necessary to protect the crew or aircraft from a situation not covered by this chapter and immediate action is required, the PIC may deviate according to [paragraph 1.3](#) Report deviations (without waivers) through

channels to the MAJCOM/A3V (or equivalent) within 48-hours. OG/CCs shall collect background information and submit a follow-up written report upon request. **(T-3)**

3.3. Waiver Protocol. Waivers to operate with degraded equipment are granted on a case-by-case basis. The PIC determines the need for a waiver after coordinating with the lowest practical level of command. MEL waiver authority is as follows:

3.3.1. The WG/CC or equivalent, delegated no lower than the OG/CC, is the waiver authority for all missions.

3.3.2. Other than MEL Waivers. Determine the governing source document (e.g. AFI, Flight Manual, Maintenance TO, etc.) to ascertain the waiver authority. Use C2 channels to notify the appropriate waiver authority. Waivers of this nature may require an extended response time.

3.3.3. Engineering Dispositions (ED). Dispositions are requested when aircraft are damaged and/or established maintenance TO procedures cannot be followed or do not exist. The onsite maintenance authority is responsible for requesting Engineering Dispositions. Most EDs allow maintenance to repair the aircraft and return it to unrestricted status; dispositions of this nature do not concern aircrews. However, EDs affecting aircrew operations require MEL waiver authority approval. **(T-2)**

3.3.3.1. PICs shall coordinate dispositions containing flight restrictions, prohibitions, additional operating limits, or modified/nonstandard operating procedures with the appropriate MEL waiver authority. **(T-2)**

3.3.3.2. PICs will not accept dispositions appearing incomplete, in error, or unsafe. **(T-2)** Prior to rejecting a disposition, the PIC will contact the appropriate MEL waiver authority. **(T-3)** The waiver authority will attempt to resolve the issue. **(T-2)** **Note:** Deviations from the flight manual requires approval IAW the flight manual.

3.4. Technical Assistance. The PIC may request technical support and additional assistance from their home unit or MAJCOM C2 agency.

3.5. MEL Table Definitions/Column Identifiers.

3.5.1. Installed - Number of components or systems installed.

3.5.1.1. In some cases, a component can be controlled from either a conventional (hard) panel or from a Communication Navigation Identification Management Unit (CNI-MU) display (soft panel). Similarly, some indications can be viewed on either a hard panel or a soft panel. Since switch functions (or indications) may be duplicated on each of the three CNI-MU displays, the number of switches (or indications) installed may not always be clear. To clarify this condition, switches (or indications) are listed as '1' in the installed column even when they are duplicated on a soft panel.

3.5.1.2. Although the indications on each pilot's Heads Down Display (HDD) can be repeated on more than one HDD, repetitions of data in excess of one per pilot are not relevant for flight and are not counted in the MEL. In general, the flight deck is designed to provide one set of data for each (in addition to the standby instruments). Thus, for most HDD indications, the number installed is listed as '2', one for each pilot.

3.5.2. Required - The minimum number (quantity) of items required for operation provided the conditions specified in the remarks or exception column are met.

3.5.3. Unless otherwise noted, when the item is a switch (or indication) which is duplicated on a soft panel, the number required for dispatch may be satisfied by either the hard panel switch (or indication) or by the switch/indication on one of the associated soft panels. For HDD indications, the “number required” is ‘2’ if both pilots must have an indication, ‘1’ if only one pilot must have an indication and ‘0’ if neither pilot is required to have the indication.

3.5.4. Remarks and exceptions. Some technical information and procedures are contained in this column. This is not all-inclusive; crewmembers shall refer to the flight manual and other directives for procedures, techniques, limitations, etc. **(T-3)**

3.5.5. One-time flight clarification: A Red X discrepancy must be downgraded through maintenance channels prior to flight. **(T-2)** An MEL waiver may still be required. This condition does not preclude carrying cargo and passengers unless stipulated otherwise by the waiver. The priority is to move the airplane to a repair capable facility. PICs must coordinate with appropriate agencies to ensure repair capability exists at the destination. **(T-2)** One-time flights may include enroute stops only when necessary to recover the airplane. **Example:** An airplane departs on a gear-down flight from Djibouti IAP and requires an enroute fuel stop (Cairo) before landing at the nearest repair-capable facility, Sigonella NAS.

3.5.5.1. One-time flight to nearest repair-capable facility: Flight is limited to the nearest (shortest enroute time) repair-capable base.

3.5.5.2. One-time flight to a repair capable facility: Flight is not restricted to the nearest repair capable facility.

3.5.6. Other mission and repair clarifications:

3.5.6.1. Shall be repaired at next repair-capable facility: Mission may continue as scheduled. Item shall be repaired upon reaching a repair-capable facility. Designate item ME upon reaching repair facility. Once maintenance action is initiated, and it is determined repairs are not possible, the PIC will discuss possible courses of action with C2 agency to return aircraft to service. **(T-2)**

3.5.6.2. Mission dictates requirement: PIC shall consider the entire mission profile, not just the next leg. **(T-3)** **Example:** An airplane is departing an enroute station with repair capability, after engine start the Pilot Flying (PF) discovers the #1 engine anti-ice is inoperative. Icing conditions are not forecasted for the next leg. However, because the mission spans several days and repair capability does not exist at the scheduled enroute stops, the PIC elects to have the item repaired prior to departing.

3.6. Navigation Systems. TO 1C-130J-1, *Flight Manual*, and **Chapter 8** lists authorized airspace and procedures for the C-130J. Equipment listed in FLIP for compliance with appropriate airspace is mandatory. **(T-2)** Loss of any component before airspace entry requires return to a station with maintenance capability or re-filing via routes permitting operation with degraded equipment.

3.7. Soft Panel Operations.

3.7.1. For partial or complete hard panel failures, aircrews may revert to soft panel operations. Normally, if a soft panel is selected due to hard panel failure, it should be used for the remainder of the flight. Doing so will mitigate the hazards associated with restoring hard panel

functionality for an item when the mission computer commanded state is unknown. Accomplishing the ENGINE SHUTDOWN and BEFORE LEAVING AIRPLANE checklists after the aircraft is parked will ensure the soft panel retains control of the particular item throughout shutdown. In all cases, PICs must consider the increased workload associated with using soft panels. **(T-3)**

3.7.2. Hard panel failures may be the result of a physical failure or loss of communication with the mission computer (MC). An aircraft reboot may recover hard panel functionality. To determine if hard panel functionality can be regained, the following procedures must be followed in sequential order:

3.7.2.1. Completely power down when accomplishing the BEFORE LEAVING AIRPLANE checklist.

3.7.2.2. Complete all checklist items in the POWER UP checklist. Do not proceed past the POWER UP checklist until it can be determined if the hard panel has recovered. Depending on the system affected (such as Auxiliary Power Unit (APU), bleed air, landing gear, etc.), do not apply bleed air or hydraulics until hard panel functionality can be determined.

3.7.2.3. To determine if a hard panel has recovered, ensure hard panel and soft panel selections/settings are identical. Press the line select key (LSK) to turn the soft panel OFF. If a CNI “CHK HARD PNL” or a referenced hard panel fault Advisory, Caution, and Warning System (ACAWS) message (e.g., “APU PNL FAULT”, “DEF SYS PNL FAULT”, etc.) does not appear, press the “VERIFY OFF” LSK. If feasible, check hard panel functionality.

3.7.2.4. If a CNI “CHK HARD PNL” or a referenced hard panel fault ACAWS message appears, the hard panel has not recovered. The “CHK HARD PNL” message indicates there is a mismatch between the soft panel and hard panel commands to the Mission Computer independent of physical switch positions. Referenced hard panel fault messages are self-explanatory.

3.7.2.5. If it is determined that the hard panel has not recovered, at the PIC’s discretion, the mission may continue to a station supporting a repair capability, including enroute stops. Do not reselect the hard panel. If a flight must continue under the control of two or more soft panels, a waiver is required.

3.7.3. After returning to home station or repair facility with a hard panel malfunction, aircrews will shut down and turn the aircraft over to maintenance personnel for required maintenance actions. **(T-3)**

3.8. BLK 8.1 Device Communication Reset. For applicable systems, use of the COMM RESET menu on the AMU may recover system functionality. Reference COMM RESET in Section 3 of TO 1C-130J-1.

3.9. C-130J Minimum Equipment List. This MEL lists the minimum equipment and systems to launch the aircraft under routine operations. The MEL does not include all equipment or systems essential to airworthiness. The MEL is not intended to promote continued operation of the aircraft for an indefinite period with systems inoperative. Due to the various configurations of

C- 130Js, the number in the Installed column is a representation of the majority of the aircraft. No waiver is required for units operating MDS without applicable system installed.

3.9.1. Tables that include BLK 8.1 equipment and systems provide additional guidance for BLK 8.1 aircraft and aircrew.

3.10. Supplements. Each MAJCOM may supplement the MEL (see [Chapter 1](#)).

Table 3.1. Air Conditioning and Pressurization.

System Item	Installed	Required	Remarks or Exceptions
Air Conditioning System	2	1	One may be inoperative provided: (1) Cross-flow valve is operative, (2) Associated Flow Control Valve is verified CLOSED, (3) Consideration is given to the type of mission, fuel quantity, required cruise altitude, and oxygen quantity.
	2	0	Both may be inoperative provided: (1) Both control valves are verified CLOSED (2) Aircraft is operated unpressurized, (3) Auxiliary vent valves are operative for ventilation and (4) Consideration is given to required cruise altitude, fuel quantity, Outside Air Temperature (OAT), and oxygen quantity. NOTE: Pressurization and both air conditioning systems may be needed if passengers or patients are carried. If a system fails, flight to a destination with repair capability (including enroute stops) may be accomplished (coordinate with the Medical Crew Director (MCD) when patients are carried). Passengers and patients will be briefed on the possibility that discomfort may be encountered.
Air Conditioning Control Panel	1	0	May be inoperative provided control is available through the associated soft panel.

a. Automatic Temperature Control System	2	0	May be inoperative provided: (1) Respective Manual Temperature Control System is operative, OR (2) Respective Air Conditioning System is considered inoperative, and (3) Temperature control is not required.
b. BA/ECS Channels	2	1	Note: Loss of the 2nd Channel will result in loss of all pneumatic-powered components and systems (except engine anti-ice).
c. Cargo Compartment Recirculation Fan	1	0	See Flight Manual for cooling restrictions.
d. Cross-Flow Valve	1	0	May be inoperative provided both air conditioning systems are serviceable, OR Only one air conditioning system is operative and the valve is manually positioned to Cargo Compartment 100% open.
e. Flow Control and Shut Off Valve			
(1) Cargo Compartment Air Conditioning System	1	0	May be inoperative provided: Divider valve operative, Right wing isolation valve is operative, Cross-flow valve is operative.
(2) Flight Station Air Conditioning System	1	0	May be inoperative provided: Divider valve operative, Left wing isolation valve is operative, Cross-flow valve is operative.
f. Temperature Control Valve	2	0	May be inoperative provided: (1) Valve is failed in the normal temperature range, OR

			(2) Air conditioning system is considered inoperative.
g. Duct Overheat Temperature Sensor	2	0	May be inoperative provided associated air conditioning system is considered inoperative.
Auxiliary Vent Valve, Flight Deck	1	1	
Auxiliary Vent Valve, Cargo Compartment	1	0	
Avionics Cooling System			
a. Avionics Cooling Fans	2	1	
b. Cargo Compartment Avionics Cooling Fans	2	1	
c. Overhead Console Cooling Fans	2	1	If both fail in flight, damage to Heads Up Display (HUD) may occur. Use Primary Flight Displays (PFD) as required. If HUDs are stowed, pull the associated Electronic Circuit Breakers (ECB) to prevent damage from heat.
Cargo Under floor Heat System	1	0	May be inoperative provided consideration is given to OAT and the number of passengers/additional crewmembers on board.
Pressurization System			
a. Automatic Pressure Control System	1	1	One channel may be inoperative May be completely inoperative provided: (1) Manual pressurization system is operative, and (2) Consideration is given to the additional crew workload caused by using manual pressurization, OR (3) Aircraft is operated unpressurized, and (4) Consideration is given to required cruise altitude, fuel/oxygen quantity, and OAT.

(1) CONSTANT ALTITUDE (CONST ALT) Mode	1	0	May be inoperative provided consideration is given to the type mission to be flown (e.g., Aeromedical Evacuation (AE)).
b. Emergency Depressurization Handle	1	0	May be inoperative provided: (1) Aircraft is operated unpressurized and (2) Consideration is given to required cruise altitude, fuel/oxygen quantity, and OAT.
c. Emergency Depressurization Switch	1	0	May be inoperative provided: (1) Control is available through the associated soft panel, OR (2) Aircraft is operated unpressurized, and (3) Consideration is given to required cruise altitude, fuel/oxygen quantity, and OAT.
d. Manual Pressurization Control System	1	0	May be inoperative provided: (1) Automatic pressurization system is operative OR (2) Aircraft is operated unpressurized, (3) Consideration is given to required cruise altitude, fuel/oxygen quantity, and OAT.
e. Outflow Valve	1	0	May be inoperative provided: (1) Valve is manually positioned to full open (2) Pressurization mode select switch is positioned to NO PRESS, (3) Aircraft is operated unpressurized, and (4) Consideration is given to required cruise altitude, fuel/oxygen quantity, and OAT.

f. Safety Valve	1	0	May be inoperative provided: (1) Outflow valve is manually positioned to full open (2) Aircraft is operated unpressurized, and (3) Consideration is given to required cruise altitude, fuel/oxygen quantity, and OAT
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Table 3.2. Auto Flight.

System Item	Installed	Required	Remarks or Exceptions
Autothrottle (A/T) System	1	0	
Digital Autopilot System	2	0	May be inoperative provided associated autopilot is not essential for performance of mission requirements. NOTE: An automatic altitude control system capable of maintaining altitude within 65 feet of that assigned is required for operation in Reduced Vertical Separation Minimum (RVSM) airspace.
Digital Autopilot/Flight Director (DA/FD) Controls			
a. Autopilot Disengage Switch (Control Wheel)	2	0	Both may be inoperative provided another method of disengaging the autopilot is operative (e.g. G/A Switch) Or Autopilot is considered inoperative. NOTE: Failure of either autopilot disengage switch will disengage any autopilot function that is engaged at that time and will prevent either autopilot from reengaging until the switch function is repaired. Deselecting flight director modes on the REF/MODE panel does not disengage the autopilot. The one exception is deselecting APPR after glideslope capture. This will disengage the autopilot.
b. Autopilot Engage Lever	2	0	May be inoperative provided associated autopilot is considered inoperative.

c. Course Knob	2	0	May be inoperative provided: (1) Associated DA/FD Navigation (NAV) and Approach (APPR) Modes (except INAV) are considered inoperative (2) Associated course arrow and indication is considered inoperative (except in INAV Mode) (3) Departure/route/approach to destination (and alternate, if applicable) does not require use of VOR/Instrument Landing System (ILS)/MB or Tactical Air Navigation System (TACAN).
d. Go-around (G/A) Switch	2	1	
e. Heading Knob	2	0	May be inoperative provided: (1) Associated DA/FD Heading (HDG) Mode is considered inoperative (2) Associated heading marker is considered inoperative.
f. Lateral Axis (LAT) OFF Switch	1	0	May be inoperative provided the autopilot lateral mode is considered inoperative.
g. Pitch Axis (PITCH) OFF Switch	1	0	May be inoperative provided the autopilot pitch mode is considered inoperative. NOTE: An automatic altitude control system is required for operation in RVSM airspace.
h. Pitch Control Wheel	1	0	May be inoperative provided: (1) Autopilot pitch attitude hold mode is operative, OR (2) Autopilot pitch mode is considered inoperative, and (3) Autopilot pitch OFF switch is positioned to OFF.
i. Pitch Synchronization (SYN) Switch	2	0	

j. Reference Mode (REF/MODE) Panel	2	1	One-time flight authorized to repair facility, including enroute stops (BLK 8.1) Known P Ref Set Panel fault does not count as inoperative unless it ceases normal operations.
(1) ALT SEL Switch	2	0	May be inoperative provided: (1) Associated altitude alert system is considered inoperative, and (2) Associated DA/FD Altitude Select (SEL) Mode is considered inoperative, and (3) Ground Collision Avoidance System (GCAS) is serviceable. NOTE: An altitude alerting system is required for operation in RVSM.
(2) BARO SET Switch	2	1	NOTE: Both Baro set switches must be operational for operation in RVSM
(3) Mode Select Switch	18	0	Individual Mode Select Switch(es) may be inoperative provided associated mode(s) is considered inoperative. NOTE: For a given mode to be inoperative, both the pilot and co-pilot switches for that mode would have to be inoperative. NOTE: An automatic altitude control system is required for operation in RVSM airspace.
(4) Reference Select Switch	2	1	
(5) Reference Set Knob	2	1	
k. Turn Ring	1	0	May be inoperative provided: (1) Autopilot roll attitude hold mode is operative, OR (2) Autopilot lateral mode is considered inoperative (3) Autopilot LAT OFF Switch is switched Off.

Digital Autopilot/Flight Director (DA/FD) Indications			
a. Automated Flight Control System (AFCS) Annunciator Panel	2	0	May be inoperative provided inoperative annunciation(s) is operative on the HUD or HDD PFD at affected location.
b. Reference Set Panel Display	2	0	May be inoperative provided: (1) Individual reference annunciations and markers (e.g., HUD, PFD cards, lines on tapes, carets) are operative, OR (2) Associated reference annunciations and markers (e.g., HUD, PFD cards, lines on tapes, carets) are considered inoperative.
Flight Director System	2	0	May be inoperative provided flight director is not required for mission accomplishment or approach.

Table 3.3. Communications.

System Item	Installed	Required	Remarks or Exceptions
Control Wheel Hush Switch	2	1	
Control Wheel Microphone Switch	2	1	
Flight Station Speaker	2	1	
Get Home Radio Panel	1	0	One time flight is authorized to a repair facility.
High Frequency (HF) Radios	2	0	If not needed to contact ATC.
Identification Friend or Foe (IFF) System	1	1	If self-test fails, you may takeoff if the IFF was operational on the previous mission. Aircraft will not depart with an IFF known to be inoperative. Exception: Formations must have at least one operational IFF per element. NOTE: An altitude reporting transponder is required for operation

a. Antenna	2	1	Mode 5 and Mode S require both antennas.
UHF/VHF Radios	4	2	May be inoperative unless essential for performance of mission, route or Air Traffic Control requirements provided: (1) UHF No. 1 or VHF No. 1 is operative and, (2) At least one additional UHF or VHF radio is operative.
Automatic Dependent Surveillance – Broadcast (ADS-B)	1	0	May be inoperative provided aircraft not operated in ADS-B required airspace.
IFF Mode 5	1	0	May be inoperative provided aircraft is not operated in airspace that requires Mode 5. NOTE: Mode 5 is not required for flights that originate in and will remain inside the inner boundaries of all domestic & coastal Air Defence Identification Zone's surrounding the CONUS in RVSM airspace. Additionally, check the FCG to see if it is allowed on OCONUS missions.
Swift Broadband Unit (BLK 8.1)	1	0	
Civil Datalink (BLK 8.1)			
a. Aircraft Communication Addressing and Reporting System (ACARS) (BLK 8.1)	1	0	May be inoperative provided not required by C2.
b. Automatic Dependent Surveillance – Contract (ADS-C) (BLK 8.1)	1	0	May be inoperative provided not required by airspace.
c. Controller Pilot Data Link Communications (CPDLC) (BLK 8.1)	1	0	May be inoperative provided not required by airspace.
Digital Switching Unit (DSU) (BLK 8.1)	1	0	One-time flight is authorized to a repair facility. The crew must operate in Backup Mode.

Digital Crew Unit (DCU) (BLK 8.1)	6	3/4	Must have one DCU accessible by each primary crew member according to mission set.
International Maritime Satellite (INMARSAT) (BLK 8.1)	1	0	May be inoperative provided VDL is available or aircraft is not operated in airspace requiring Civil Datalink capabilities.
Link 16 (BLK 8.1)			
a. Portable Mission Display (PMD) (BLK 8.1)	2	0	Unless required for mission accomplishment.
b. MIDS-LVT (Multifunctional Information Distribution System – Low Volume Terminal (BLK 8.1)	1	0	Unless required for mission accomplishment.
c. SMDP (Special Mission Display Processor) (BLK 8.1)	1	0	Unless required for mission accomplishment.
Public (PA) Address System	1	0	May be inoperative if passengers or troops are carried and, at the discretion of the crew, effective and safe communications can be conducted.
a. Flight Station Speaker	2	1	
b. Cargo Compartment Speaker	16/14	0	May be inoperative if passengers or troops are carried and, at the discretion of the crew, effective and safe communications can be conducted.

Table 3.4. Electrical System.

System Item	Installed	Required	Remarks or Exceptions
AC Generator, Engine	4	3	May be inoperative if repair capability is not available. Flight to a destination with repair capability, including enroute stops, may be made. The generator will be removed and the generator mount padded before flight.
Batteries	2	2	
DC Voltmeter	1	1	
Electrical Control Panel	1	0	May be inoperative provided control is available through the associated soft panel.

Electronic Circuit Breaker Unit (BLK 6.0)	13	13	
Electronic Circuit Breaker Unit (BLK 8.1)	15	15	ECBU #15 & 16 added, ECBU #14 skipped.
Indications (System Status Display)			
a. Loadmeter Indications	5	4	One engine or APU loadmeter indication may be inoperative provided the APU generator is operative.
b. Voltmeter Indication, AC	5	4	One engine or APU voltmeter indication may be inoperative provided the APU generator is operative.
c. Voltmeter Indication, DC	2	2	
Inverters			
a. Essential Avionics AC Bus	1	1	
b. Essential Avionics AC 26V Power	1	1	
c. Main Avionics AC Bus	1	1	
d. Main Avionics AC 26V Power	1	1	
Regulated Power Supply (RPS) System	8	0	May be inoperative provided the equipment normally powered through the inoperative regulated power supply system is not required, OR Control is available through the associated soft panel.
Transformer Rectifiers (TR)	4	3	One TR may be inoperative for flight to a repair facility including enroute stops.

Table 3.5. Equipment.

System Item	Installed	Required	Remarks or Exceptions
Aerial Delivery System (ADS)			

a. Aerial Delivery Control Panel	1	0	May be inoperative provided: (1) Control is available through associated Soft Panel, OR (2) Airdrop operations will not be conducted.
Multifunction Control Display (MFCD)	1	0	May be inoperative provided heavy equipment airdrop or combat offload operations will not be conducted. Exception: May be inoperative for heavy equipment airdrop or combat offload during contingency operations if operational needs outweigh the risk of operating without MFCD.
Pallet Lock Control Unit (PLCU)	10/7	0	May be inoperative provided heavy equipment airdrop or combat offload operations will not be conducted. May be inoperative provided PLCU 10(7) and PLCUs associated with a heavy equipment airdrop or combat offload operations are operational.
Printer (BLK 8.1)	1	0	
Microwave	1	0	May be inoperative provided crew does not need for mission accomplishment.
Lavatory	1	1	May be inoperative provided no passengers are onboard and the flight time does not exceed 3 hours. Flight time may be extended beyond 3 hours provided urinals are onboard and accessible, the crew can comfortably utilize the urinals (male vs female crew), and there is proper support to clean the urinals at the next destination.

Table 3.6. Fire Protection.

System Item	Installed	Required	Remarks or Exceptions
APU Fire Control Handle Lights	1	1	
APU Fire Detection Loop	2	1	Flight to a station with repair capability, including enroute stops is authorized or the APU is considered inoperative.

Bleed Air Overheat Detection Sensors	14	7	One sensor in each zone may be inoperative for flight to a station with repair capability, including enroute stops
Engine/APU Fire Extinguisher Bottle	2	2	
Engine Fire Control Handle Lights	4	4	
Engine Fire Detection Loop	8	4	The Channel B loop in each nacelle may be inoperative for flight to a station with repair capability, including enroute stops
Nacelle Overheat Detection Loop	8	4	The Channel B loop in each nacelle may be inoperative for flight to a station with repair capability, including enroute stops
Fire and Overheat Detector System (FODS) Controller	1	1	One-time flight authorized to repair facility, including enroute stops is authorized.

Table 3.7. Flight Controls.

System Item	Installed	Required	Remarks or Exceptions
Aileron Trim Indicator	1	0	Flight to a destination with repair capability, including enroute stops, may be made. The trim tab position must be visually verified prior to flight.
Aileron Trim System	1	1	
Elevator Trim Indicator	1	0	Flight to a destination with repair capability, including enroute stops, may be made. The trim tab position must be visually verified prior to flight.
Elevator Trim System	1	1	
Elevator Trim Tab Control Wheel Switch	4	4	
Elevator Trim Tab Power Selector Switch	1	1	
Emergency Elevator Trim Tab Switch	1	1	
Flap Position Indicator (AMU)	1	1	

Flap Position Indicator Gauge	1	0	May be inoperative provided flap position indicator (AMU) is operative.
Rudder System Direct Reading Pressure Gauge	2	0	
Rudder Trim Indicator	1	0	Flight to a destination with repair capability, including enroute stops, may be made. The trim tab position must be visually verified prior to flight.
Rudder Trim System	1	1	
Stick Pusher System	1	0	Flight to a destination with repair capability, including enroute stops, may be made provided the stall warning system is operational.
Stall Warning System	1	1	NOTE: All stall warning system aural and visual warnings must be functional.
a. Angle of Attack Sensor	2	1	

Table 3.8. Fuel.

System Item	Installed	Required	Remarks or Exceptions
Boost Pump, Main Tank	4	3	One may be inoperative provided: (1) Applicable flight manual limitations and procedures are observed, (2) Main tank transfer pumps are operative and, (3) ECBs for inoperative main tank boost pump are strapped open.
Crossfeed Manifold Fuel Pressure Indication	1	1	
Crossfeed Valve	4	0	May be inoperative provided: (1) Associated fuel level control valve is operative, (2) Affected valve is secured CLOSED, and (3) Main tank transfer pumps are operative. (4) Cross-ship separation valve is operative.

			NOTE: Valve must be manually closed if failed open or ECBs opened if valve is failed closed.
Cross-ship Separation Valve	1	0	May be inoperative provided valve is electrically disconnected and secured OPEN.
Fuel Control Panel	1	0	May be inoperative provided control is available through the associated Soft Panel. Consideration should be given to the addition to crew work load caused by using the soft panel.
Fuel Dump Valve	2	1	One may be inoperative provided the valve is secured CLOSED.
Fuel Management Controller	1	1	One channel may be inoperative.
Fuel Quantity Indications			NOTE: Although the fuel quantity indications can be displayed on multiple HDD system status displays as well as on the hard panel, repetitions in excess of one indication per tank are not relevant. The 'number installed' includes one indication per tank and the 'number required' specifies the number of tanks that must have an operative indication.
a. Auxiliary Tank	2	1	One may be inoperative provided: <ul style="list-style-type: none"> (1) All fuel flow indicators are operative, (2) Associated fuel transfer pump is operative, (3) All other fuel quantity indicators for tanks with fuel on the same side of the cross-ship valve are operative, and (4) Fuel quantity in the associated tank is verified by an accepted procedure prior to takeoff and at all enroute stops when the engines are shut down (magnetic sight gauge).
	2	0	

			Both may be inoperative provided associated fuel tanks are verified EMPTY.
b. External Tank (if installed)	2	1	<p>One may be inoperative provided:</p> <p>(1) All fuel flow indicators are operative,</p> <p>(2) At least one associated fuel transfer pump is operative,</p> <p>(3) All other fuel quantity indicators for tanks with fuel on the same side of the cross-ship valve are operative, and</p> <p>Fuel quantity in the associated tank is verified by an accepted procedure prior to takeoff and at all enroute stops when the engines are shut down (dipstick).</p> <p>May be inoperative provided associated fuel tanks are verified empty.</p>
c. Main Tank	4	3	<p>One may be inoperative provided:</p> <p>(1) All fuel flow indicators are operative,</p> <p>(2) Associated fuel boost pump is operative,</p> <p>(3) All other fuel quantity indicators for tanks with fuel on the same side of the cross-ship valve are operative, and</p> <p>(4) Fuel quantity is checked prior to first takeoff following fuel servicing by an accepted procedure (dipstick).</p> <p>(5) At enroute stops, when engines are shut down, the tank with the inoperative indicator and the symmetrically opposite tank will be</p>

			checked by an accepted procedure prior to takeoff (dipstick). (6) Engine out training using the engine corresponding to the inoperative indicator or its symmetrical opposite will not be conducted during tank to engine operations.
d. Totalizer	1	0	
Fuel Quantity Preset Switch	6/8	0	
Refuel Drain Pump	1	0	May be inoperative provided the manifold is manually drained.
Single Point Refuel Valve	1	0	May be inoperative provided alternate refueling procedures can be used.
Single Point Refueling Drain Pump	1	0	May be inoperative provided manual draining can be accomplished.
Transfer Pump			
a. Transfer Pump, Auxiliary Tank	2	0	May be inoperative provided ECBs for inoperative pump are strapped open. If pump is inoperative, associated tank is considered unusable.
b. Transfer Pump, External Tank (if installed)	4 4	2 0	One pump in each tank may be inoperative provided ECBs for inoperative external tank transfer pump are strapped opened. Both pumps in each tank may be inoperative provided: (1) ECBs for inoperative pumps are open, and (2) Both tanks are empty.
c. Transfer Pump, Main Tank	4	3	One may be inoperative provided ECBs for inoperative transfer pump are strapped open and the respective main tank boost pump is operative.

Table 3.9. Hydraulic System.

System Item	Installed	Required	Remarks or Exceptions
Hydraulic Control Panel	1	0	May be inoperative provided control is available through the associated soft panel.

Hydraulic Pumps			
a. Auxiliary Hydraulic Pump	1	1	
b. Engine Hydraulic Pump	4	4	
c. Hand Pump, Auxiliary	1	1	May be inoperative provided the electrical auxiliary pump is operative.
d. Suction Boost Pump	2	2	
Hydraulic System Indications (System Status Display)			
a. Auxiliary System Pressure	1	0	May be inoperative provided the direct reading gauge is serviceable.
b. Booster System Pressure	1	0	May be inoperative provided rudder boost pressure indication is operative.
c. Utility System Pressure	1	0	May be inoperative provided rudder boost pressure indication is operative.

Table 3.10. Ice and Rain Protection.

System Item	Installed	Required	Remarks or Exceptions
Angle of Attack (AOA) Sensor Anti-ice System	2	1	May be inoperative provided AOA sensor is considered inoperative.
Ice Detector	2	0	Both may be inoperative provided: (1) Wing leading edge lights are operative, OR (2) Aircraft is not operated in known or forecast icing conditions.
Ice Protection Control Panel	1	0	May be inoperative provided control is available through the associated soft panel.
Engine Anti-ice Valve	4	0	Valve may be inoperative provided the failed valve has failed OPEN; if any valve is failed CLOSED do not operate in known or forecast icing conditions.
NESA Windshield Heat System	2	0	May be inoperative provided aircraft is not operated in known or forecast icing conditions. Flight manual restrictions apply.

Pitot Heat System	2	1	Pilot Side may be inoperative if ADC 1 is considered inoperative. Co-pilot side must be operative.
Propeller Ice Protection System	4	0	May be inoperative provided aircraft is not operated in known or forecasted icing conditions.
Propeller De-icing Timer Unit	1	0	May be inoperative provided aircraft is not operated in known or forecasted icing conditions.
Total Air Temperature Sensor Anti-ice System	2	0	May be inoperative provided aircraft is not operated in known or forecast icing conditions.
Windshield Defog	2	0	
Windshield Wiper	2	0	May be inoperative provided aircraft is not operated in precipitation on the ground.
Wing and Empennage Ice Protection System	1	0	May be inoperative provided aircraft is not operated in known or forecast icing conditions.

Table 3.11. Indicating/Recording Systems.

System Item	Installed	Required	Remarks or Exceptions
Advisory Caution and Warning System (ACAWS)	1	1	
Cockpit Voice Recorder (CVR)	1	1	NOTE: All components must be operative for the CVR to be considered operative except as listed below.
a. Underwater Acoustic Locator Beacon (on CVR)	1	1	CVR Beacon may be inoperative provided flight profile does not include extended overwater segment(s).
Digital Flight Data Recorder (DFDR)	1	1	
a. Underwater Acoustic Locator Beacon (on DFDR)	1	1	

Table 3.12. Landing Gear and Brakes.

System Item	Installed	Required	Remarks or Exceptions
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Anti-Skid System	1	0	May be inoperative provided: (1) Anti-Skid system ECBs are opened, and (2) Flight manual performance limitations are applied, and (3) Shall be repaired at first capable repair facility. (4) Maximum effort operations not allowed.
Brake Pressure Indication			
a. Emergency Brake Pressure Indication	1	0	May be inoperative provided the auxiliary system pressure is operative.
b. Normal Brake Pressure Indication	1	0	May be inoperative provided utility system pressure indication is operative.
Landing Gear Lever Lock	1	0	May be inoperative provided landing gear control panel is considered inoperative. NOTE: On associated soft panel the lock function is satisfied by the verify switch.
Landing Gear Position Indicator	3	3	
Landing Gear Warning Light	2	0	May be inoperative provided GCAS is operational.

Table 3.13. Lights.

System Item	Installed	Required	Remarks or Exceptions
Exterior Lighting			
a. Landing Light, Vis/IR	2	1	One landing light may be inoperative provided taxi light on that side is operative. NOTE: Both landing lights may be inoperative if only flown during daylight hours.
b. Navigation Light	6	3	For night operations, the left and right wingtip Nav lights must be operational in addition to one of the white lights on the tail cone.
c. Anti-collision (Strobe) Light	2	0	May continue to first stop where repairs can be made.
d. Taxi Light	2	0	Both may be inoperative provided landing lights are operative.

e. Wing Leading Edge Lights	2	0	May be inoperative at night provided: (1) Ice detectors are operative, OR (2) Aircraft is not operated in known/forecast icing.
f. Wing Tip Taxi Lights	2	0	May be inoperative provided aircraft is not taxied in congested areas at night without adequate lighting for obstacle clearance.
g. Formation Lights	9	4	Formation lights are not required for daylight ops. Two lights per wing are required for night formation flying.
Flight Station Lighting			May be inoperative provided sufficient lighting is operative to make each instrument, control and other device for which it is provided easily readable.
a. Copilot Displays Light Circuit	1	1	
b. Lamp Test Circuit	1	1	
Covert Ramp Loading Lights (BLK 8.1)	2	0	May be inoperative provided they are not needed for mission execution.

Table 3.14. Navigation.

System Item	Installed	Required	Remarks or Exceptions
ADC	2	1	See flight instrument requirements, Chapter 5 of this AFMAN for CAT I restrictions with shared sources. NOTE: Both required for operation in RVSM airspace and CAT II ILS approaches.
Automatic Direction Finding (ADF) System	2	0	Both may be inoperative provided departure/route/approach to destination (and alternate, if applicable) does not require use of ADF. NOTE: All components must be operative for the ADF to be considered operative.
Cursor System	1	0	May be inoperative unless required to accomplish mission objectives.
Digital Mapping System	1	0	May be inoperative unless required to accomplish mission objectives.

			Consideration should be given to the terrain, required altitudes, route peculiarities, visibility, the crew's experience with the route and whether the mission is conducted during daylight or at night.
Terrain Awareness and Warning System (TAWS)	1	0	May be inoperative unless required to accomplish mission objectives. Consideration should be given to the terrain, required altitudes, route peculiarities, visibility, the crew's experience with the route and whether the mission is conducted during daylight hours or at night.
Doppler Velocity Sensor	1	0	
EGI (Embedded Global Positioning/Inertial Navigation System)	2	1	May be inoperative provided: (1) Overwater (out of NAVAID range) or Basic Area Navigation Airspace (BRNAV) flight will not be conducted, (2) Consult FLIP for airspace restrictions
GPS (Global Positioning System) (BLK6.0) / MGPS (Military GPS) (BLK 8.1)	2	0	Unless required for mission accomplishment. NOTE: With GPS inoperative, the in-flight alignment capability will not be available.
CGPS (Civil Global Positioning System) (BLK 8.1)	2	0	May be inoperative provided mission accounts for reduced RNAV/Required Navigation Performance (RNP) capabilities.
a. WAAS (Wide Area Augmentation System) (BLK 8.1)	2	0	May be inoperative provided approaches utilizing WAAS are not utilized.
Ground Collision Avoidance System (GCAS)	1	0	May be inoperative provided passengers/troops will not be carried.
Radar, Low Power Color	1	0	Required if thunderstorms or hazardous conditions that can be detected by airborne radar are forecast or exist along route of flight. Radar not required for formation flight if another formation member has operable radar.

a. Control Panel	1	0	May be inoperative provided: (1) Control is available through the associated Soft Panel, and (2) Modes other than the map or weather (WX) modes are not essential to accomplish mission objectives.
Radar Altimeter (RA)	2	1	One may be inoperative provided CAT II ILS approaches will not be flown.
Standby Flight Instruments			
a. Inclinator (Slip ball)	2	0	May be inoperative provided HUD slip/skid indicator at affected position is operative.
b. Magnetic Compass	1	1	
c. Standby Airspeed/Altimeter	1	1	
d. Standby Attitude	1	1	
Station Keeping Equipment (SKE)	1	0	May be inoperative unless required to accomplish mission objectives. Consideration should be given to crew experience with alternate formation flying techniques, mission peculiarities and whether the mission is conducted during daylight hours or at night.
Tactical Air Navigation (TACAN)	2	0	All components must be operative for the TACAN to be considered operative. If both TACANs are inoperative, Distance Measuring Equipment (DME) is not available. NOTE: 2 TACANs are required when performing RNAV procedures with a BLK 6.0 aircraft.
Total Air Temperature Sensor	2	2	

Traffic Alert Collision Avoidance System (TCAS)	1	0	Shall be repaired at the next repair capable facility. Required for flight during NVD operations. May be inoperative provided: (1) TCAS is deactivated and secured, and (2) TCAS is not necessary for compliance with Air Traffic Control (ATC) requirements or airspace requirements. (3) Passengers/troops will not be carried.
UHF Direction Finder System	1	0	May be inoperative unless essential for performance of mission objectives.
VHF Navigation System (VOR/ILS/MB)	2	1	The No. 1 system must be operative. NOTE: All components must be operative for the VHF navigation system to be considered operative.

Table 3.15. Oxygen.

System Item	Installed	Required	Remarks or Exceptions
Crew Oxygen System	1	1	
Oxygen Regulators	10	3	May be inoperative provided one is available for each primary crewmember. Loadmaster's position must meet mission needs.

Table 3.16. Pneumatic.

System Item	Installed	Required	Remarks or Exceptions
Bleed Air Augmenter Valve	4	3 Less than 3	One may be inoperative provided: (1) Affected valve is CLOSED, (2) All nacelle shut off valves are operative. May conduct a one-time flight to repair facility. Fly unpressurized (manual / open) and with no icing forecast.
Bleed Air Divider Valve	1	0	May be inoperative provided: (1) Affected valve is OPEN, (2) Both wing isolation valves are operative.
Bleed Air Pressure Indication	1	1	

Bleed Air Environmental Control System Electronic Controller	1	1	One channel may be inoperative.
Nacelle Shutoff Valve	4	4	
Wing Isolation Valve	2	1	One may be inoperative provided: (1) Affected valve is OPEN, and (2) Divider valve is operative.

Table 3.17. System Integration and Display.

System Item	Installed	Required	Remarks or Exceptions
Avionics Management Unit (AMU)	2	1	All displays and data fields must be operative for the associated AMU to be considered operative.
Bus Adapter Unit (BAU) Type I	6	4	BAU 3 (daytime only) and/or 6 will be used as replacements or can be failed (swap modules). 1, 2, 4, & 5 must be operational.
Bus Adapter Unit (BAU) Type II	4	4	
Bus Interface Unit (BIU)	2	2	
Communication/Navigation/Breaker Panel (CNBP)	1	1	All displays and data fields must be operative for the CNBP to be considered operative. However, when an input is not present and the correct 'data not available' or 'fail' indication is displayed, the CNBP may still be considered operative provided the failed indication is not required for the current mission or flight.
Communication/Navigation/Identification Management Unit (CNI-MU)	3	2	One may be inoperative at the observer position. Note: All components must be operative for the CNI- MU to be considered operative except as listed below.
Communication/Navigation/Identification System Processor (CNI-SP)	2	1	One may be inoperative for one time flight to repair facility.
Data Bus, (1553B)			
a. Avionics Bus	2	2	

b. Communication/Navigation Bus	2	2	
c. Display Bus	2	2	
d. Electronic Warfare Bus	1	0	Unless required for mission accomplishment
e. Interprocessor Communication Bus	1	1	
f. Panel Bus	2	2	
Heads Down Display (HDD)	4	3	One may be inoperative provided the HUD on the affected side is fully operational. NOTE: All data fields and displays must be operative for the associated HDD to be considered operative. However, when an input is not present and the correct 'data not available' or 'fail' indication (which may be a blank or removal of the indication) is displayed, the affected HDD may still be considered operative provided the failed indication is not required for the current mission.
HUD	2 2	1 0	One may be inoperative provided both HDDs on the affected side are fully operational. Both may be inoperative provided: All four heads down displays (HDDs) are operative (including operative independent PFDs in the pilot and copilot positions), and Forecast weather at destination is at or above Category I (CAT I) approach minimums.
a. HUD Control Panel	2	0	May be inoperative provided the associated HUD is considered inoperative.
b. HUD Declutter Switch, (Control Wheel)	2	0	
Mission Computer	2	2	
a. Special Mission Processor (Black/Unclassified) bus (BLK 8.1)	1	0	Unless required for mission accomplishment.

b. Special Mission Processor (Red/Classified) bus (BLK 8.1)	1	0	Unless required for mission accomplishment.
c. Special Mission Processor Interface (SMPI)(BLK 8.1)	2	0	Unless required for mission accomplishment.

Table 3.18. Auxiliary Power Unit (APU).

System Item	Installed	Removed	Remarks or Exceptions
AC Generator, APU	1	0	May be inoperative provided APU electrical power is not required. External electrical power or aircraft battery power must be available for starting engines.
Auxiliary Power Unit (APU)	1	0	May be inoperative provided APU bleed air or electrical power is not required. An alternate air source and external electrical power or aircraft battery power must be available for starting engines.
Bleed Air System, APU	1	0	May be inoperative provided APU bleed air is not required. An alternate air source must be available for starting engines.
Inlet Door, APU	1	0	May be inoperative provided: (1) Inlet Door can be operated manually and, (2) Inlet Door is secured CLOSED prior to departure, OR (3) Inlet Door is secured CLOSED and, (4) APU is considered inoperative.

Table 3.19. Doors.

System Item	Installed	Required	Remarks or Exceptions
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Cargo Ramp and Door System	1	0	<p>Warning light, latching mechanisms, and locking systems will be operative for pressurized flight.</p> <p>NOTE: Aircraft will not takeoff with a malfunctioning ramp lock system, with cargo on the ramp.</p> <p>Aircraft may continue to destination if ramp locks malfunction in-flight. Repair lock malfunction or remove cargo from ramp prior to continuing flight operations. Do not pressurize the airplane if the ramp locks fail to lock. Unpressurized flight, with no cargo on the ramp, may be performed with a cargo ramp lock malfunction when mission requirements dictate.</p>
a. Ramp Latches	10	9	<p>One may be inoperative provided:</p> <ol style="list-style-type: none"> (1) All remaining latches are operative, (2) Latch warning system is operative, (3) No cargo is carried on the ramp, (4) Ramp is verified CLOSED and LOCKED before each departure, and (5) Cabin differential pressure is limited to 5 in. HG.
b. Cargo Door Down Locks	2	2	NOTE: If one fails, the aircraft must remain pressurized to keep the cargo door closed.
Cargo Door and Ramp Indicators			
a. Ramp/Door FULL Light	1	0	<p>May be inoperative provided:</p> <ol style="list-style-type: none"> (1) MFCD "RAMP & DOOR FULL OPEN" ACAWS message can be used, <p>OR</p> <ol style="list-style-type: none"> (2) Ramp position airdrop light (aft cargo comp.) is operative.
b. Ramp Position Airdrop Light	1	0	<p>May be inoperative provided:</p> <ol style="list-style-type: none"> (1) MFCD "RAMP & DOOR FULL OPEN" ACAWS message can be used, <p>OR</p>

			(2) Ramp/Door FULL light (flight station) is operative.
c. Ramp Warning Light	1	0	May be inoperative provided: (1) ACAWS RAMP OPEN PRESSURIZED and RAMP OPEN 250 messages are operative, OR (2) Ramp is verified CLOSED and LATCHED before each departure, OR (3) Aircraft is operated unpressurized.
Cargo Door and Ramp Sensors			
a. ADS Arm Position Switches	2	0	May be inoperative provided the aerial delivery system is considered inoperative.
Crew Entrance Door	1	1	
a. Door Warning Light	1	0	May be inoperative provided the ACAWS CREW DOOR OPEN messages are operative.
Paratroop Door	2	0	May be inoperative provided affected door is secured CLOSED and latched, and the exit is not required to meet minimum emergency exits per number of passengers carried
a. Door Warning Light	2	0	May be inoperative provided the associated ACAWS L TROOP DOOR OPEN 250 or R TROOP DOOR OPEN 250 message is operative.

Table 3.20. Propellers.

System Item	Installed	Required	Remarks or Exceptions
Propeller	4	4	
Propeller Control Panel	1	0	May be inoperative provided control is available through the associated soft panel.
a. Propeller Control Switch	4	0	May be inoperative provided control is available through the associated soft panel.

b. Prop Sync Switch	1	0	
Propeller Synchronizing	1	0	

Table 3.21. Powerplant.

System Item	Installed	Required	Remarks or Exceptions
Automatic Thrust Control System (ATCS)	1	1	If ATCS is degraded, a component/sensor has potentially failed. If maintenance is not available and takeoff is necessary, flight with ATCS DEGRADED (Caution) must be authorized by the OG/CC. Operation with ATCS inoperative procedures will be followed.
Engine Assembly	4	4	
Engine Controls			
a. Engine Start Panel	1	0	May be inoperative provided control is available through the associated soft panel.
b. Full Authority Digital Electronic Controls (FADEC) Panel	1	1	
c. Low Speed Ground Idle Switch	4	0	
d. Oil Cooler Flap Indications	4	0	May be inoperative provided control is available through the associated soft panel and oil temp indication(s) is/are operational for affected oil cooler flap(s).
Engine Indicating System			
a. Fuel Flow Indication	4	4	
b. Gas Generator Speed (NG) Indication	4	4	
c. Horse Power Indication	4	4	
d. Measured Gas Temperature (MGT) Indication	4	4	
e. Oil Pressure Indication, Engine	4	4	

f. Oil Pressure Indication, Gearbox	4	4	
g. Oil Quantity Indication	4	0	May be inoperative provided the oil quantity is verified before flight and the OIL QTY 1 (2, 3, or 4) LO caution is operational.
h. Oil Temperature Indication	4	4	
i. Power Turbine Speed (NP) Indication	4	4	
Engine Oil System			
a. Oil Cooler Flap Automatic Control	4	0	May be inoperative provided oil cooler flap manual control is operative.
b. Oil Cooler Flap Manual Control	4	4	
FADEC	8	7	One may be inoperative provided all dedicated sensor input and control logic is serviceable to/from the operative FADEC on the engine with lost redundancy. If the loss of redundancy is on an outboard engine, carry out ATCS inoperative takeoff procedures. ATCS will be DEGRADED. Flight with ATCS DEGRADED (CAUTION) must be authorized by the OG/CC. Operation with ATCS inoperative procedures will be followed. Two FADECs per engine must be serviceable for auto shutdown to be operative on that engine.
Nacelle Interface Unit (NIU)	4	4	

Chapter 4

OPERATIONAL PROCEDURES

4.1. Checklists. A checklist is not complete until all items have been accomplished. Momentary hesitations are authorized for coordination items, ATC interruptions, and deviations specified in the flight manual, etc. Notes amplifying checklist procedures or limitations may be added to the checklists. Currency of notes is a crewmember's responsibility. Checklist pages may be carried in separate binders provided checklist integrity is not compromised. MAJCOM Stan/Eval and the AFMC Flight Manual Manager are the checklist insert approval authorities. Send checklist inserts to MAJCOM Stan/Eval, who will in turn coordinate with AFMC for approval. All checklist inserts must have a POC. Operations Group Stan/Eval shall approve local in-flight guides and inserts not affecting TO guidance and procedures. **(T-2)**

4.2. Duty Station. Aircrew must occupy their assigned duty stations from takeoff to landing unless absence is necessary to perform duties in connection with the operation of the aircraft or physiological needs [14 CFR Part 91.105]. **(T-0)** With both pilots in their seats, PICs may authorize rest periods for one pilot occupying a primary duty station during non-critical phases of flight (the other pilot will be awake and alert).

4.2.1. Augmented Crew Station. Unless crew duties dictate otherwise, an extra pilot or loadmaster should occupy the augmented crew station to the maximum extent possible, especially in times of increased crew workload (e.g. critical phases of flight) to assist in scanning, promote effective Crew Resource Management/Threat and Error Management (CRM/TEM), and perform other tasks as determined by the PIC. The PIC may allow other individuals to occupy the augmented crew station as long as their presence will not hinder the performance of the crew. Qualified crewmembers, or unqualified crewmembers under the supervision of an instructor, may perform tasks assigned by the PIC.

4.2.2. For pilot seat swaps on the ground only, the PIC may allow a qualified loadmaster to occupy a pilot position to monitor brakes. The aircraft shall be completely stopped with the parking brake set and the loadmaster will be briefed on the actions required to stop the aircraft in the event of brake failure. **(T-2)**

4.2.3. Cargo configuration permitting, Loadmasters stationed in the cargo compartment during takeoffs and landings or while performing scanner duties will occupy a crashworthy seat on aircraft modified by TCTO 1C- 130-2010. If cargo configuration does not permit the Loadmaster Crashworthy Seat to be placed in a crashworthy position, loadmasters shall sit on the flight deck or may sit in a cargo compartment troop seat with seat belt fastened for takeoff and landing. If the tactical situation dictates, loadmasters may remain in a non-crashworthy position for takeoff and landing. If there are more than two loadmasters in the cargo compartment, e.g. traveling to the AOR, the seats are for the primary loadmasters. **(T-2)** See also [Table 2.1](#).

4.3. Flight Station Entry. PICs may authorize passengers and observers access to the flight station during all phases of flight. The total number of persons permitted in the flight station is limited to the number of seats with operable seat belts and a sufficient oxygen source. Passengers and observers will not be permitted access to either pilot position. **(T-2)** See [paragraph 5.20](#) for further guidance on cockpit congestion.

4.4. Takeoff and Landing Guidance. An aircraft commander, or above, will occupy either the left or the right seat during all takeoffs and landings. The designated PIC (A-code) is not required to occupy a primary position, but still retains overall authority for conduct of the mission. **(T-3)**

4.4.1. An AC or IP will make all takeoffs and landings during:

4.4.1.1. Airlift of nuclear weapons. **(T-3)**

4.4.1.2. Aircraft emergencies, unless conditions prevent compliance or an FP under direct supervision of an IP. **(T-3)**

4.4.2. PICs with less than 100 Primary Assigned Aircraft (PAA) hours since AC certification. **(T-3)** Unless the pilot in the other seat is an AC or above, Aircraft Commanders with less than 100 PAA hours since certification (N/A IPs) will make all takeoffs and landings under any of the following conditions:

4.4.2.1. Ceiling/visibility less than 300 feet and/or RVR 4000 ft (3/4 SM visibility). **(T-3)**

4.4.2.2. Runway Condition Reading (RCR) less than 12. **(T-3)**

4.4.2.3. Crosswind component greater than 15 knots. **(T-3)**

4.5. Landing Gear and Flap Operating Guidance. The PF will command configuration changes. The pilot monitoring (PM) will verify appropriate airspeed and configuration prior to echoing the gear or flap actuation command. The PM should operate the landing gear and flaps. Aircrew may elect to have the right seat pilot operate the gear if a safety of flight issue arises due to reaching across the flight deck. **(T-2)**

4.6. Outside Observer/ACM Duties. Available crewmembers will assist in clearing during taxi operations, and any time the aircraft is below 10,000 feet MSL as crew duties permit. **(T-3)**

4.7. Seat Belts.

4.7.1. All occupants will have a designated seat with a seat belt. Crewmembers will have seat belts fastened when occupying a duty position, unless crew duties dictate otherwise. LMs (or other crewmembers) required to be in the paratroop door at the scanning position will have a designated seat (other than the scanning seat) with a seat belt. **Exception:** When Loadmaster Crashworthy Seat installed, an additional designated seat is not required. If cargo configuration does not permit positioning the Loadmaster Crashworthy Seat in a crashworthy position, then loadmasters will have a designated seat with a seat belt. **(T-3)**

4.7.2. Loadmasters or authorized scanners will only use the permanently installed paratroop door seats when crashworthy seats are not installed during combat or contingency missions with hostilities, or while participating in training missions that enable aircrews to improve their visual threat scanning techniques and procedures. Loadmasters will always have an assigned seat, even if using the paratroop door seat for scanning. When scanning duties are completed the loadmaster must use their assigned seat for subsequent takeoffs and landings in non-threat environments. **(T-3)** When the paratroop door seat is used, the following conditions must be met:

4.7.2.1. The flight helmet will be worn. **(T-3)**

4.7.2.2. Paratroop door armor will be in place (if required). **(T-3)**

4.7.2.3. When the crashworthy seat is not installed, loadmasters/scanners will restrain themselves by either the primary or secondary method. **(T-3)**

4.7.2.3.1. Use the restraint harness depicted in TO 13A1-1-1 (NSN 1680-01-314-3184) as the primary means of loadmaster/scanner restraint. Route the harness straps through the support braces forward and aft of the paratroop doors with a girth hitch and attach to the restraint harness riser quick disconnect fittings. Ensure the leg and chest straps are connected. Attach the harness lifeline to a floor/Enhanced Cargo Handling System (ECHS) rail tiedown ring and adjust to limit vertical movement. A secondary method is the use of 5,000 pound straps routed around each of the supports located forward and aft of the paratroop door. Attach the hook end of the strap to the riser clip of the restraint harness and attach the ratchet end to a tiedown ring on top of the ECHS rails. Wrap the hook of the ratchet with cloth backed tape to ensure it does not separate from the tiedown ring. Attach the lifeline to a floor/ECHS tiedown ring and adjust to limit vertical movement.

4.7.3. All crewmembers will have seat belts fastened during takeoff and landing. Fasten shoulder harness unless crew duties dictate otherwise. Crewmembers performing instructor or flight examiner duties or in upgrade training to instructor or flight examiner are exempt from seat belt requirements if not occupying a primary crew position; however, they will have a seat available with an operable seat belt. **(T-3)**

4.7.4. Litter patients, actual or simulated, must remain secured on litters for takeoff and landing. **(T-3)**

4.8. Aircraft Lighting. Aircraft lighting procedures are IAW AFMAN 11-202V3, AFMAN 11-218, *Aircraft Operations and Movement on the Ground*, and applicable TOs.

4.8.1. NVD Lighting. Follow the exterior lighting guide in AFTTP 3-3.C-130J for all NVD training situations. Lights-out operations during peacetime will be conducted IAW AFI 11-202V3.

4.8.1.1. Total lights out operations are authorized with concurrence of the controlling agency in restricted airspace and warning areas, or locally designated airfields documented in a Letter of Agreement (LOA).

4.8.2. Cargo compartment lighting will be dictated by the tactical situation and will be coordinated between the mission commander/PIC and loadmaster(s). Cargo compartment emergencies may require overt lighting on full bright. The nature of the emergency and the tactical situation will dictate what level of lights is used, and whether the loadmaster continues the use of NVDs.

4.8.3. Strobe Lights. For tactical operations refer to AFTTP 3-3.C-130J, *Combat Aircraft Fundamentals*. For non-tactical operations, the aircraft strobe lights will be operated as follows:

4.8.3.1. BEFORE STARTING ENGINES Checklist. Set the top strobe to RED. **(T-3)**
When operating the APU, set the top strobe to RED. **(T-3)**

4.8.3.2. LINEUP Checklist. Set both strobes to WHT for day and night single-ship and day formation. Set both strobes to RED for night formation. PICs may select most appropriate lighting configuration for conditions (e.g. IMC). **(T-3)**

4.8.3.3. AFTER LANDING Checklist. Set the top strobe to RED. The top strobe shall remain in RED until APU shutdown. **(T-3)**

4.9. Portable Electronic Devices. Portable procedures are IAW AFMAN 11-202V3.

4.9.1. Do not connect unauthorized equipment (laptop computers, video equipment, food preparation equipment, audio players, etc.) to the aircraft intercom, PA, radio, or electrical systems. Missions requiring devices with continual power source may connect electrical devices with a surge protector and a built in circuit breaker. **(T-3)**

4.9.2. The user must provide the certification letter for any device(s) to be used to the aircrew prior to the appropriate PIC preflight briefing. **(T-3)**

4.9.3. Iridium phones will be turned off within 25 feet of ground refueling operations and during takeoff, approach and landing. **(T-3)**

4.10. Advisory Calls. Refer to AFMAN 11-202V3 applicable supplements for a listing of mandatory advisory calls, responses, and aircrew actions. The PF will announce changes to the level of automation, flight director and autopilot mode selections, and mode transitions, (e.g. “Autopilot engaged”, “Altitude Hold”, “Autothrottle”, “Nav-Capture”, etc.) (BLK 8.1 e.g. “VNAV PATH Captured”, “Autothrottle Armed”, etc.) and/or when circumstances require deviating from normal procedures. The PM will make all advisory calls except those designated for other crewmembers. For BLK 8.1 the PF will announce HUD Special Alerts without an associated aural alert, and the PM will acknowledge the PF. Mandatory calls are as follows: **(T-3)**

4.10.1. Takeoff. State “V-ONE” at V1 (Refusal Speed). State “ROTATE” at VR (Rotation Speed). If V1 is adjusted to = VR, state “ROTATE” at VR.

4.10.2. Takeoff Aborts and Landings. The PM will advise the PF which power levers to bring to reverse (“ALL 4”, “INBOARDS”, “OUTBOARDS”).

4.10.3. Deviations. Any crewmember seeing a heading (+/- 10 degrees), airspeed (+/-10 knots), or altitude (+/- 100 feet) deviation with no attempt to correct the deviation will immediately notify the PF. Any crewmember seeing a potential terrain or obstruction problem will immediately notify the PF.

4.11. Stabilized Approach. Stabilized approach procedures are IAW AFMAN 11-202V3 and applicable supplements.

4.11.1. Visual Transition. It is imperative for aircrews to review the airfield environment. Identify key features such as approach light type, airfield lighting, geographic layout/configuration of runways, taxiways, ramps, etc. To the maximum extent possible, this study will take place during the crew mission briefing and reviewed again prior to descent. **(T-3)**

4.11.2. Missed Approach/Go-Around. Aircrew will brief actions for anticipated missed approach/go-around to include specific crewmember duties. **(T-3)** **Note:** Missed approach/go-around guidance is contained in TO 1C-130J-1 and AFMAN 11-202V3.

4.11.3. FTUs only. FTUs will train students to ensure they understand and are capable of complying with all aspects of stabilized approach criterion. FTU instructors must use their

expertise and experience to only deviate from the guidelines of stabilized approach criteria as required during appropriate instructional scenarios. (T-3)

4.12. Crew Resource Management/Threat and Error Management (CRM/TEM). CRM/TEM procedures are IAW AFI 11-290, *Cockpit/Crew Resource Management Program*.

4.12.1. Fuel Panel. The fuel panel is considered a “verification” panel. The PM/LM or additional crewmember will advise the PF before operating the panel (e.g., priming, crossfeeding, tank-to-engine, transferring, non-standard configurations, and dumping). After completing the task, the PF/PM will verify the panel is set correctly. To facilitate this coordination, pilots should plan to make changes to the fuel panel during periods of low workload such as before taxi and during cruise segments. (T-3)

4.12.2. Primary Net. BLK 8.1 primary crewmembers will establish a primary net which they will be monitoring during all phases of flight. (T-3) Secondary nets may be coordinated as a crew for additional communication and do not need to be monitored by all crewmembers. If secure communications are planned to be utilized then secure nets 4 and 5 must be used by the crew for interphone. (T-3)

4.12.3. Civil Datalink. BLK 8.1 crews using Civil Datalinks will ensure they reference the *Global Operational Datalink (GOLD) Manual* for standard procedures and restrictions. (T-3)

4.13. Automation. Automation procedures are IAW AFMAN 11-202V3.

4.13.1. Crews will follow the guidance, except for cruise flight (above 10,000 feet): The PF will fly the aircraft and maintain a dedicated heads-up lookout. (T-3) If the PF intends to be heads-down, aircraft control shall be transferred to the PM, who will remain heads-up. (T-3) Heads-down time does not include momentary scanning of the CNI-MU, HDDs, and panels.

4.13.2. **Table 4.1** and **Table 4.2** provide standard actions for both pilots during Automated and Manual flight.

4.13.2.1. Automated Flight is defined as the autopilot fully engaged and coupled to the Flight Director. Use autothrottles as desired. **CAUTION:** If the autothrottles are disengaged for sustained descents during automatic flight, it is possible that Altitude Capture may occur with the power levers at or near Flight Idle and result in an approach to stall condition. **CAUTION:** If the BLK 8.1 Flight Management System (FMS) target airspeed is coupled to the autothrottles with autothrottles engaged the crew must be aware of the speeds commanded by the FMS to avoid potential near stall conditions based on aircraft configuration, particularly in the terminal environment and during multiple practice approaches.

4.13.2.2. Manual Flight is defined as the PF providing manual input to the flight controls. Use autothrottle as desired.

Table 4.1. Automated Flight.

	PF	PM
REF/MODE PANEL		

Reference Settings (1) (HP, RAD ALT, Indicated Airspeed (IAS), FPA, MINS) (VS for BLK 8.1)	- Set as required	- Verify settings
Mode Selections (ALT, NAV, HDG, APPR, IAS, VS, Coordinated Airplane Positioning System (CAPS)) (VNAV and A/T for BLK 8.1)	- Select desired mode - Announce mode status	- Verify and acknowledge
LATERAL FLIGHT		
Direct To/Intercept Course To/ Route Modification	- Verify route modification - Direct the PM to execute	- Modify route as directed - Execute when directed
Radar Vector/Heading Change	- Set the heading reference - State setting	 - Verify and acknowledge
VERTICAL FLIGHT		
Climb/Descent clearance	- Verify and acknowledge	- Set new FL/altitude reference
VNAV Climb/Descent (BLK 8.1)	- Set new altitude reference - State setting - Direct PM to execute desired VNAV profile	- Set altitude reference on corresponding CNI-MU VNAV page - Verify and acknowledge - Execute when directed
Note: 1. For arrival/approach planning, the PF may transfer aircraft control to the PM and set all reference settings as required for the planned approach.		

Table 4.2. Manual Flight.

	PF	PM
REF/MODE PANEL		
Reference Settings (1) (HP, RAD ALT, IAS, FPA, MINS) (VS for BLK 8.1)	- Direct PM to set if required - Verify settings	- Set as directed by PF
Mode Selections (2) (ALT, NAV, HDG, APPR, IAS, VS, CAPS) (VNAV and A/T for BLK 8.1)	- Select desired mode - Announce mode status	- Verify and acknowledge
LATERAL FLIGHT		
Direct To/Intercept Course To/ Route Modification	- Verify route modification - Direct the PM to execute	- Modify route as directed - Execute when directed
Radar Vector/Heading Change	- Verify and cknowledge	- Set heading reference - State setting
VERTICAL FLIGHT		
Climb/Descent clearance	- Verify and acknowledge setting	- Set new FL/altitude reference
VNAV Climb/Descent (BLK 8.1)	- Direct PM to execute desired VNAV profile - Verify and acknowledge setting	- Set new altitude reference - Set altitude reference on corresponding CNI-MU VNAV page
Notes: 1. For arrival/approach planning, the PF may transfer aircraft control to the PM and set all reference settings as required for the planned approach. 2. The PF may direct the PM to select desired modes. In this case, the PM will make the necessary announcements and the PF will verify and acknowledge. (T-3)		

4.14. Transportation of Pets. Transporting pets (dogs and cats only) in conjunction with the sponsor's permanent change of station is authorized. Other animals (e.g. goats) are normally prohibited, but may be moved according to DOD 4515.13R, *Air Transportation Eligibility*.

4.15. Runway, Taxiway and Airfield Requirements.

4.15.1. Minimum Runway and Taxiway Requirements. For peace-time do not use runways less than 3,000 feet. Minimum runway width is 80 feet (60 feet for maximum effort). Minimum taxiway width is 30 feet. **(T-3)**

4.15.2. Runway Length for Takeoff and Landing. The minimum runway required for a normal takeoff is the charted Critical Field Length (CFL). The minimum runway required for normal landings is the charted landing distance over 50 foot obstacle with outboard engines in high speed ground idle and inboard engines in maximum reverse.

4.15.2.1. Normal takeoffs shall not be made if Runway Available is less than CFL, or if Refusal Speed is less than Ground Minimum Control Speed (V_{MCG}). In such conditions the PIC will either:

4.15.2.1.1. Download cargo or fuel.

4.15.2.1.2. Wait until weather conditions improve.

4.15.2.1.3. Utilize maximum effort procedures, see [paragraph 4.15.2.4](#).

4.15.2.2. Runway Length for Intersection Takeoffs. Normally, takeoffs will be initiated from the beginning of the approved usable portion of the runway. Intersection takeoffs may be made at the discretion of the AC provided the operating environment (i.e., gross weight, obstructions, climb criteria, weather, etc.) allows for a safe takeoff and departure. Take Off and Landing Data (TOLD) computations must be based on the runway remaining from the point at which the takeoff is initiated.

4.15.2.3. Use of Overruns. If approach end overruns are available, stressed, and authorized for normal operations, they may be used to increase the runway available for takeoff. Departure end overruns (if stressed and authorized) may also be used for landing if needed.

4.15.2.4. Maximum Effort Operations. Use maximum effort procedures when conditions (TOLD, runway dimensions, and/or obstacles) or directives require their use. Runway widths less than 80 feet require a maximum effort qualified crew (maximum effort procedures are not required if normal CFL or normal landing distance over a 50' obstacles is available). **(T-3)** All maximum effort operations must fall in the "Recommended" area of the Performance Manual Crosswind Chart unless otherwise approved by the OG/CC. **(T-3)**

4.15.2.5. Maximum Effort Takeoff. Use maximum effort takeoff procedures if available runway length is less than CFL, or if refusal speed is less than Ground Minimum Control Speed (V_{MCG}), or if necessary to clear takeoff obstacles in VMC (all engines operating). **Note:** See [4.15.2.5.4](#).

4.15.2.5.1. Minimum runway length is the charted ADJUSTED MFLMETO, and minimum rotation speed is Adjusted Maximum Effort Rotation Speed ($AMAX V_{ROT}$). **(T-3)** Waiver authority to use unadjusted MFLMETO or $MAX V_{ROT}$ is delegable no lower than the OG/CC (or AOC Senior Director for higher headquarters tasked missions) and only if mission necessity precludes downloading cargo or waiting for conditions to improve. **(T-2) WARNING:** If using unadjusted MFLMETO or $MAX V_{ROT}$ when an engine failure occurs, airspeed is close to stall speed and may be below

minimum control speed. If obstacles are in the flight path, a successful takeoff may not be possible. If a decision is made to stop, there may be insufficient runway to complete the stop.

4.15.2.5.2. Acceleration Check. An acceleration check is required when refusal speed is less than rotation speed. An acceleration check should also be completed when, in the opinion of the PIC, a critical condition exists (heavy Gross Weight, high PA, obstacles, Runway Surface Condition (RSC), etc.). **(T-2)**

4.15.2.5.3. Maximum Effort Takeoff and Landing Data. When using adjusted maximum effort (AMAX) procedures for training (without 8.1), AMAX V_{ROT} mitigation may be omitted provided that the runway available is greater than or equal to CFL and the decision is briefed. Climbout performance data displayed on TAKEOFF DATA 3/4 and 4/4 pages are not valid for adjusted maximum effort (AMAX) speeds and procedures; displayed MAX EFF data always reflects (unadjusted) maximum effort takeoff (MAX) speeds and procedures. When using AMAX or MAX effort procedures, C-130J takeoff climb performance data is not valid for one-engine inoperative IFR departure planning.

4.15.2.6. Maximum Effort Landing. Use maximum effort landing procedures whenever the runway length available for landing is less than that required for a normal landing. **(T-2)** Plan the touchdown within the first 500 feet of usable runway. **(T-3)**

4.15.2.6.1. The minimum runway required for a maximum effort landing is equal to the charted Maximum Effort landing ground roll plus 500 feet. **(T-2)**

4.15.2.6.2. Compute landing performance using two outboard engines in ground idle, two inboard engines in reverse, ("2OB HGI; 2IB REV" in the Performance Manual), and maximum anti-skid braking. **(T-2)**

4.15.3. Arresting Cables.

4.15.3.1. Do not land on approach end arresting cables (does not include recessed cables). **(T-3)** If the aircraft lands before the cable, the crew should contact the tower to have the cable inspected.

4.15.3.2. Do not takeoff or land over an approach end cable that has been reported as slack, loose, or improperly rigged by Notice To Airmen (NOTAM), automatic terminal information service (ATIS), or ATC. **(T-3)**

4.15.3.3. Operations are authorized on runways where BAK-12 systems are installed, with an eight point cable tiedown system. When operating from runways equipped with other types of systems, or if it is unknown if the BAK-12 system includes eight point tiedowns, aircrews should recognize the increased risk of damage to the aircraft.

4.15.4. Other Airfield Requirements. Runways designated as capable in the GDSS/Airfield Suitability and Restrictions Report (ASRR) do not require a Landing Zone (LZ) survey. See AMCI 11-211, *Destination Airfield Suitability Analysis*, for runway designations.

4.15.5. RCR and RSC Limitations. IAW Flight Information Handbook (FIH).

4.15.5.1. The performance charts used to determine braking action are based on concrete runways. When RCR values are not reported, the following runway surfaces in [Table 4.3](#) are based on operational experience and should be used only as a guide.

Table 4.3. Landing Zone (LZ) Runway Condition Reading (RCR) Values.

SURFACE TYPE	RCR (DRY)	RCR (WET)
Asphalt	23	12
Aluminum Matting	20	10
M8A1/with Anti-Skid (Pierced Steel Planking, (PSP))	20	8
M8A1/without Anti-Skid PSP	13	3
Clay	16	5
Crushed Rock	16	5
Grass	12	5

4.15.5.2. Limit operations on snow, slush and water covered runways to an RSC of 10. This equates to a covering of one inch of slush/water and up to three inches of loose, blowing snow. Performance data does not exist for coverings in excess of these amounts.

4.15.5.3. On runways partially covered with snow or ice, takeoff computations will be based on the reported RSC, Runway Condition Assessment Matrix (reference FIH), or RCR for the cleared portion of the runway. A minimum of 40 feet either side of centerline should be cleared (30 feet for maximum effort operations). If 40 feet either side of centerline is not cleared (30 feet for maximum effort ops), computations will be based on the non-cleared portion. **(T-3)**

4.16. Aircraft Taxi and Taxi Obstruction Clearance Criteria and Foreign Object Damage (FOD) Avoidance.

4.16.1. Aircraft Taxi and Taxi Obstruction Clearance Criteria IAW AFMAN 11-218.

4.16.1.1. Aircraft Operations and Movement on the Ground, aircraft may taxi into or out of a marked parking spot without marshallers/wing walkers at home station along fixed taxi lines which have been measured to ensure a minimum of 10 feet clearance from any permanent obstruction. Adjacent aircraft are considered a permanent obstruction provided the aircraft is parked properly in its designated spot and not moving. Aerospace Ground Equipment (AGE) and vehicles are considered a permanent obstruction provided it is parked entirely within a designated area. Areas will be designated by permanent markings such as painted boxes or lines on the ramp or another suitable means.

4.16.2. FOD Avoidance. Make every effort to minimize the potential for engine FOD. Crews should:

4.16.2.1. Carefully review airfield layout during mission planning. Be familiar with taxi routes, turn requirements, and areas for potential FOD.

4.16.2.2. Minimize power settings during all taxi operations.

4.16.3. Reverse Taxi. The PIC shall coordinate reverse taxi directions and signals with the loadmaster and marshaller (when available). Before reverse taxiing, the loadmaster will:

4.16.3.1. Secure all cargo and ensure all passengers are seated. (T-3)

4.16.3.2. Open the aft cargo door and lower the ramp to approximately 12 inches above horizontal. (T-3)

4.16.3.3. Position himself/herself on the aircraft ramp to direct reverse taxi, report any hazards, and provide the PIC with timely interphone instructions on turns, distance remaining, conditions of the maneuvering area, and stopping point. (T-3)

4.16.3.4. Stop no less than 25 feet from an obstruction. (T-3)

4.16.3.5. During night reverse taxi operations without NVDs, the PIC and loadmaster will ensure the taxi area is sufficiently illuminated. (T-3)

4.16.4. After landing and clearing the runway, and with approval of the PIC, the loadmaster may open the aft cargo door and lower the ramp to no lower than the horizontal position to prepare for cargo off/onload provided equipment, cargo, and passengers remain secure in the cargo compartment. Careful attention must be given to the ramp position when taxiing on rough or unprepared surfaces.

4.16.5. During taxi operations, at least one aircrew member on the flight deck will have an airport diagram or airfield depiction (if published) readily available for reference and should be visible at unfamiliar airfields. (T-3)

4.17. Functional Check Flights (FCFs) and Acceptance Check Flights (ACFs). FCFs and ACFs will be accomplished IAW TO 1-1-300, *MX Functional Check Flights and Maintenance Operational Checks*, TO 1C-130J-6CF-1, *Acceptance or Functional Check Flight Procedures*, and AFI 21-101, *Aircraft and Equipment Maintenance Management*. (T-2) Crews should only perform tasks or functions contained in specific technical order guidance. If requested to perform a non-standard function, PICs should contact their OG/CC to see if an FCF applies.

4.17.1. FCF Restrictions. See TO 1-1-300 and AFI 21-101.

4.17.2. Temporary waivers or permanent waivers to FCF procedures for aircrew qualification when operationally necessary may be authorized.

4.17.3. The OG/CC is responsible for the wing FCF program. 4.16.2.6 Publish additional guidance in a local program guide or supplement to this manual. The OG/CC may authorize a partial FCF to check only those systems disturbed by maintenance, an inspection or modification.

4.17.4. Conduct check flights within the designated check flight airspace of the base from which the flight was launched except when the flight must be conducted under specific conditions, not compatible with local conditions and area restrictions. (T-3)

4.17.5. The decision to approve a combined FCF and ferry flight is the responsibility of the WG/CC.

4.17.6. The OG/CC will only certify highly experienced instructors as FCF crewmembers. The OG/CC will determine FCF crew complement after a thorough ORM assessment for that specific FCF flight. (T-3)

4.17.7. Ideally, conduct FCFs in daylight, VMC. OG/CCs may authorize a flight under a combination of VMC and IMC. Begin the flight in VMC. **(T-3)** If the aircraft and all systems are operating properly, the crew may proceed Instrument Flight Rules (IFR) through IMC to “Visual Flight Rules (VFR) on Top” for the altitude phase of the flight.

4.17.8. If a malfunction occurs during a FCF, the Maintenance Group Commander (MXG/CC) may subsequently release the aircraft for flight providing the malfunction is not related to the condition generating the FCF, and the original condition operationally checked good.

4.17.9. Only FCF crews shall perform high-speed taxi checks. **(T-3)** Perform checks IAW the flight manual and maintenance technical orders. Prepare the aircraft with minimum fuel necessary to accomplish the check to limit brake/tire wear, (ensure fuel on board will permit a safe return to base should the aircraft unexpectedly become airborne) and turn on the anti-skid system. The PIC will calculate takeoff data for the highest speed planned and ensure runway available allows sufficient stopping distance for existing conditions without exceeding normal brake energy limits. **(T-2)**

4.18. Ground Collision Avoidance System (GCAS)/Terrain Awareness and Warning System (TAWS).

4.18.1. When a GCAS TERRAIN or TAWS TERRAIN / OBSTACLE AHEAD alert occurs and terrain/obstacle clearance cannot be assured visually, immediately change the flight path (within 3 to 5 seconds) by initiating a takeoff power climb. Continue the climb until a safe altitude is reached or until exiting the alert envelope. With terrain and obstacles clearly in sight, the PF will call terrain/obstacle in sight, state intentions and visually remain clear of terrain/obstacles. **(T-2)** If the situation degrades and a GCAS PULL UP or TAWS TERRAIN. When OBSTACLE PULL UP alert occurs, immediately execute the appropriate recovery in the flight manual. **WARNING:** Do not delay pull-up for diagnosis of the low altitude warning.

4.18.2. In TACTICAL mode, several GCAS alert envelopes are modified to allow for maneuvering in close proximity to terrain. Normally, this mode is most suitable for modified contour flight and VFR low-altitude arrivals but, at the AC’s discretion, may be used for any tactical operation.

4.19. Traffic Alerting and Collision Avoidance System (TCAS). It is imperative to follow resolution advisories (RAs) to obtain aircraft separation computed by TCAS. Failure to follow the computed RA may increase the probability of a midair collision. Pilots who deviate from an ATC clearance in response to an RA shall notify ATC of the deviation as soon as practical and promptly return to the ATC clearance when the traffic conflict is resolved or obtain a new clearance. **(T-0)**

4.19.1. Mission requirements may allow selection of “TA only” when operating from parallel runways, in the visual traffic pattern, or in formation since the proximity to aircraft may result in unwarranted RAs. Excessive climb and descent rates could lead to inadvertent “TA/RA.” Reducing climb/descent rates near level off can limit inadvertent TCAS advisories.

4.19.2. TCAS event documentation. The PIC will document all pertinent information surrounding an RA event on an AF IMT 651, *Hazardous Air Traffic Report (HATR)*, and submit to the nearest Air Force Safety Office. **(T-2)** The investigating Safety Office will determine if the event is, in fact, reportable, and will notify the individual or unit submitting the HATR of this determination and/or pending actions. **(T-2)**

4.20. Radar Altimeter.

4.20.1. Instrument Approaches.

4.20.1.1. Precision and Localiser Performance with Vertical Guidance (LPV) Approaches.

4.20.1.1.1. Set RAD ALT reference to Height Above Touchdown (HAT) minus 50 feet. **(T-2)**

4.20.1.1.2. CAT II ILS. Set published RA minimums. **(T-2)**

4.20.1.2. Non-Precision, LNAV/VNAV, and LNAV approaches. Setting the RAD ALT as prescribed below is meant to adequately alert the crew to an unsafe terrain clearance condition (“Altitude-Altitude”) in the absence of a “Minimums-Minimums” alert. Setting the RAD ALT to a higher setting than prescribed may result in premature/unexpected “Altitude-Altitude” advisories and prevent the GCAS “Minimums” alert. **(T-3)**

4.20.1.2.1. Straight-In Approaches. Normally set RAD ALT reference to 250 feet (minimum setting). **(T-3)**

4.20.1.2.2. Circling Approaches. Normally set RAD ALT reference to 300 feet (minimum setting). **(T-3)**

4.20.1.3. When established on a published approach in IMC, or at night when terrain clearance cannot be assured, and an “Altitude-Altitude” special alert is heard, initiate an immediate go-around. Once terrain clearance is confirmed, resume normal operations. In day VMC, the aircrew will verbally acknowledge and evaluate the alert and determine the appropriate course of action (continue the approach or go-around). **(T-3)**

4.20.2. Tactical Operations. For modified contour flight, the RAD ALT should be set no lower than 80% of the planned contour (e.g. for 500 Above Ground Level (AGL) contours, set the RAD ALT no lower than 400 feet). Other settings may be briefed and used based on terrain and mission needs.

Chapter 5

AIRCREW PROCEDURES

Section 5A—Pre-Mission

5.1. Aircrew Uniform.

5.1.1. Aircrew will wear the aircrew uniform, as outlined in AFI 36-2903, *Dress and Personal Appearance of Air Force Personnel*, and the appropriate MAJCOM supplement, on all missions, unless otherwise authorized. When the Foreign Clearance Guide (FCG) requires civilian attire, dress conservatively.

5.1.2. OG/CCs will determine clothing and equipment to be worn or carried aboard all flights commensurate with mission, climate, and terrain involved. **(T-3)**

5.1.2.1. See TO 14-1-1, *U.S. Air Force Aircrew Flight Equipment Clothing and Equipment* and AFI 11-301 Vol 1, *Aircrew Flight Equipment (AFE) Program*, for authorized aircrew clothing and aircrew flight equipment (AFE) combinations as well as AFMAN 11-202V3 and AFI 36-2903. All crewmembers will have Nomex gloves in their possession. Only aircrew boots listed on the AFLCMC Air Force Safe-to-Fly list are authorized.

5.1.2.2. Crewmembers will remove rings and scarves before performing aircrew duties. **(T-3)**

5.2. Personal Requirements.

5.2.1. Helmets and Oxygen Masks. Crewmembers will carry a personal helmet:

5.2.1.1. Anytime parachutes are required to be carried by the mission directive. **(T-3)**

5.2.1.2. Whenever the aircrew requires Night Vision Device (NVD). **(T-3)**

5.2.1.3. When required for wear of the aircrew chemical, biological, nuclear, radiological (ACBRN) protective equipment. **(T-3)**

5.2.1.4. For unpressurized flight operations IAW AFMAN 11-202V3. **(T-3)**

5.2.1.5. Loadmasters will wear helmets for all airdrop operations. **(T-3) Exception:** Personnel seated with seat belts fastened are not required to don helmets.

5.2.2. Tool and Airdrop Kits. At least one loadmaster tool kit will be on board for all missions. **(T-3)**. One airdrop kit will also be aboard the aircraft for aerial delivery missions. **(T-3)** Units will identify tool kit contents and inventory procedures in local supplements. As a minimum, the tool kit will contain the tools necessary to perform the emergency actions in section 3 of the flight manual and meet operational requirements. **(T-3)**

5.2.3. Night-Vision Operations. For night-vision operations, the PIC will preflight and carry a spare set of NVDs onboard the aircraft. **(T-3)** For local training, OG/CCs will determine spare NVD requirements. If a spare set is not available, NVD operations should cease if either pilot's NVDs fail or visual acuity deteriorates. Both pilots will wear the same model NVDs **(T-3)**. Each crewmember will preflight their own NVDs before flight and carry a spare set of batteries. Each crewmember will also carry an NVD-compatible light source. **(T-3)** See TO

12S10-2AVS9-2, *Technical Manual Image Intensifier Set, Night Vision Type AN/AVS-9, 11 June 2008*, for full NVD preflight procedures.

5.3. Aircrew Publications Requirements. All crew members will carry (or have in-flight access to) the publications specified in **Table 5.1. (T-3)** Fanfolds are optional for loadmasters. Electronic aircrew publications are maintained at the AMC/A3V Publications webpage. Units may specify additional publications in their unit supplement. Units may establish a process to provide paper publications onboard the aircraft, but this does not change the EFB requirement for all crew members. The process will be described in the unit supplement. **(T-3)** Reference AFI 11-215, *Flight Manuals Program* for additional guidance on electronic publications.

Table 5.1. Aircrew Publications (EFB).

PUBLICATIONS
ALL GLOBAL folder
C-130J folder
DTR folder
FCG folder
FLIP folder
Tactics folder
Local folder(s)

Section 5B—Pre-Departure

5.4. Mission Kits. Carry mission kits on all operational missions. Publications should be maintained on the EFB. Forms may be maintained and carried electronically provided operable in-flight viewing and printing capability exists. If no such capability exists, paper copies must be available. **(T-3)** Suggested items include: **Note:** * Indicates mandatory for all TACC or AMC missions away from home station and as directed by C2 authority.

5.4.1. Forms:

- 5.4.1.1. DD 1351-2, *Travel Voucher or Sub Voucher*.
- 5.4.1.2. DD 1351-2C, *Travel Voucher or Sub Voucher (Continuation Sheet)*.
- 5.4.1.3. *CBP Form 6059B, *US Customs and Border Protection Declaration Form*.
- 5.4.1.4. DD 1748-2, *Airdrop Malfunction Report (Personnel-Cargo)*.
- 5.4.1.5. *DD2131, *Passenger Manifest*.
- 5.4.1.6. *CBP Form 7507, *General Declaration (Outward/Inward)*.
- 5.4.1.7. *AF IMT 15, *United States Air Force Invoice*.
- 5.4.1.8. *AF IMT 315, *United States Air Force AvFuels Invoice*.
- 5.4.1.9. AF IMT 457, *USAF Hazard Report*.

- 5.4.1.10. *AF IMT 651, *Hazardous Air Traffic Report (HATR)*.
- 5.4.1.11. *AFTO IMT 781, *ARMS Aircrew/Mission Flight Data Document*.
- 5.4.1.12. *AF IMT 1297, *Temporary Issue Receipt*.
- 5.4.1.13. AF IMT 3211, *Customer Comments*.
- 5.4.1.14. AMC Form 43, *AMC Transient Aircrew Comments*.
- 5.4.1.15. AMC Form 54, *Aircraft Commander's Report on Services/Facilities*.
- 5.4.1.16. AF IMT 711B, *USAF Mishap Report*.
- 5.4.1.17. *AMC Form 4031, *CRM/TEM Skills Criteria Training/Evaluation*.
- 5.4.1.18. *AF IMT 4075, *Aircraft Load Data Worksheet*.
- 5.4.1.19. Japanese Customs Service Forms.
- 5.4.1.20. *AMC IMT 97, *AMC In-Flight Emergency and Unusual Occurrence Worksheet*.
- 5.4.1.21. *SF 44, *Purchase Order-Invoice-Voucher*.

5.4.2. Orders:

- 5.4.2.1. DD Form 1610, *Request and Authorization for TDY Travel of DoD Personnel*.
- 5.4.2.2. AF Form 1631, *NATO Travel Orders* (when required).
- 5.4.2.3. *AF Form 4327a, *Crew Flight (FA) Authorization* (or MAJCOM prescribed according to DAFMAN 11-401, *Aviation Management*).

5.4.3. Miscellaneous:

- 5.4.3.1. *Boxcar seals/padlock.
- 5.4.3.2. *Masking tape.

5.5. FLIP Requirements.

5.5.1. All crewmembers that require FLIP products for operations will have current data to cover the planned mission and global operations. **(T-3)** If required, topographical and sectional charts for areas of operation (GNC/OPC/TPC/JNC/JOG/Sectionals) and DoD Area Arrival Charts will be used. **(T-3)**

5.5.2. On local unit training sorties, aircrew will ensure they have the required FLIP products for the planned profile and contingencies (e.g. divers). **(T-3)**

5.6. Briefing Requirements.

5.6.1. Pre-Departure Briefing Items. The PIC will contact the local C2 agency to confirm mission requirements. The PIC and controlling agency jointly share responsibility to identify special briefing requirements. Briefings may include buffer zone, electronic warfare activities, SAFE PASSAGE, Electromagnetic Interference (EMI), diplomatic clearance, hazardous cargo, anti-hijacking procedures, operations and safety supplements to flight manuals, and OPORD procedure. **(T-3)**

5.6.2. The PIC is responsible for necessary coordination with ground crew on taxi operations and marshalling plan prior to outbound taxi. Ensure all aircrew are briefed the taxi plan prior to outbound taxi, and inbound enroute descent. **(T-3)**

5.6.3. NVD Briefing Requirements. For missions conducting NVD operations, crews will review and coordinate NVD failure procedures for all phases of the mission. Any crewmember who experiences NVD problems will inform the rest of the crew. If unable to regain the use of NVDs, the PIC will consider crew experience, mission priority, and intel, tactics and threat briefings in determining if the mission can be completed safely. During cargo compartment emergencies, return to normal lighting until the emergency is resolved. Discuss actions for smoke and fumes in the aircraft. **(T-3)**

5.7. Flight Plan/Data Verification.

5.7.1. Computer Flight Plan (CFP) Use CFPs are the official sources of performance, navigation, and climatic data, including enroute wind information. If stand-alone, computer-based plans are used, each mission segment should utilize best wind data available. Use only MAJCOM-validated CFPs. **(T-3)**

5.7.1.1. Use CFPs to the maximum extent practical. Flight crews may manually compute flight plans. The PIC has final responsibility for flight plan accuracy and diplomatic clearance compliance. Verify CFPs for route of flight and fuel computation accuracy before departure. Pass any flight plan discrepancies to the C2 flight planning office. On flight-managed sorties, promptly notify the flight manager of any flight plan discrepancies to ensure the correct route of flight is filed with air traffic control. Identify inaccurate CFP winds to flight managers if the average wind for a route segment exceeds either 30° error in direction or 25 knots in speed. **(T-3)**

5.7.1.2. BLK 8.1 aircrew that receive flight plans via ACARS will ensure completeness and accuracy against the CFP IAW [paragraph 5.7.1.1](#). **(T-3)**

5.7.1.3. CFPs are not required on local training sorties if the sortie will consist of solely pattern work or instrument approach procedures if accomplished in the local area.

5.7.2. All waypoint data retrieved from a database should be verified by one or more of the following methods:

5.7.2.1. Latitude/longitude from current FLIP.

5.7.2.2. Bearing/distance from a flight plan after latitude/longitude are verified for each waypoint.

5.7.2.3. Ground Based NAVAIDs.

5.7.3. When conducting Drop Zone (DZ)/Landing Zone (LZ) operations, both pilots will verify CNI-MU Computed Air Release Point (CARP)/LZ information with a valid DZ/LZ survey. Pilots will verify all JMPS-generated DZ/LZ information before entering data into the CNI-MU. Refer to DAFMAN 13-217 for DZ/LZ survey information/requirements/applicability.

5.8. Departure Planning. Use AFMAN 11-202V3, this chapter, and appropriate MAJCOM supplements. Regardless of the type of departure flown (IFR/VFR), review the following (as appropriate): IFR departure procedure, instrument approach plate, NOTAMS, GDSS Giant

Report, and suitable terrain charts. To verify CNI TOLD, both pilots will cross-check CNI TOLD INIT entries and the PM will compare CNI TOLD outputs (if required by flight manual) to the data obtained from the performance manual, tab data, C-130J preTOLD application or MAJCOM approved Flight Performance Module (FPM). The minimum outputs that must be checked and the allowable tolerances for those outputs are outlined in the performance manual.

5.8.1. One Engine Inoperative (OEI) climb performance.

5.8.1.1. For IFR departure, plan a contingency procedure to account for OEI in accordance with AFMAN 11-202V3 IFR Climb Performance to ensure that the departure and emergency return route provides obstacle and terrain avoidance.

5.8.1.1.1. If using non-standard takeoff minimums, PICs are responsible for sufficient planning to see and/or avoid applicable takeoff obstacles. This includes but is not limited to the following: a current obstacle avoidance tool will be available in flight, (e.g., Foreflight with GPS position available to EFB, Digital Map with current VVOD or current printed chart), a review of applicable obstacles (including close-in obstacles) will be completed, and the PIC will review the departure plan with the crew. **(T-3)**

5.8.1.1.2. For all IFR departures, the applicable required climb gradient (standard, published, or reduced IAW AFMAN 11-202V3), and screen height will be entered into the CNI-MU TOLD pages. Aircraft weight must be less than or equal to the calculated maximum aircraft weight for the type of three-engine departure listed (normal or 50-flap at obstacle clearance speed). **(T-2)**

5.8.1.1.3. Special Departure Procedure (SDP). See AFMAN 11-202V3 and associated AMC Supplement.

5.8.1.1.3.1. For OEI contingencies, SDPs are authorized for use by aircrew who complete MAJCOM approved training.

5.8.1.1.3.2. Aircrews will plan IFR departure methods listed in AFMAN 11-202V3, para 5.9. and only transition to an SDP in a OEI scenario after thorough pre-flight planning.

5.8.1.1.3.3. Commercial SDP products (e.g. Jeppesen's www.milplanner.com) with accurate C-130J performance data are authorized.

5.8.1.2. For VFR Departure, One Engine Inoperative (OEI) climb capability shall ensure departure or emergency return route provides obstacle avoidance and at no time will be less than 152 feet/nautical mile for 3 ENG MAX GWT NORMAL or 50% FLAP. Unless a higher obstacle exists that is a factor for an emergency return, crews will ensure a climb to 500 ft above field elevation. **(T-3)**

5.8.2. Runway Condition Reporting. Aircrew shall continue to utilize the runway condition reading (RCR) provided at USAF airfields. When operating from **Part 139** and federally obligated airports reporting Takeoff and Landing Performance Assessment (TALPA):

5.8.2.1. Use the Runway Condition Assessment Matrix (Runway Condition Assessment Matrix (RCAM)) to convert the reported runway condition code (RwyCC) to the applicable RCR. The RCAM can be found in the FIH.

5.8.2.2. Use the pilot reported braking action terms when providing a PIREP (Good, Good to Medium, Medium, Medium to Poor, Poor, Nil).

5.8.2.3. At locations serviced by USAF airfield management, do not request RwyCC. If a RwyCC is requested, ATC will notify the aircrew the RwyCC is not available and provide any available RCR, braking action advisories, runway surface condition and PIREPS.

5.9. Adverse Weather.

5.9.1. Flight into areas of forecast or reported severe turbulence is prohibited, except when operating on a MAJCOM-approved mission specifically requiring thunderstorm penetration. Wake Turbulence categories are defined in AFMAN 11-202V3. The C-130J is a LARGE (NAS) or MEDIUM (ICAO) aircraft for wake turbulence separation. **(T-2)**

5.9.1.1. Anytime windshear may be encountered on departure or approach, aircrews should select weather mode on one NAV RADAR display and windshear mode on another NAV RADAR display.

5.9.1.2. If no RVR readout is available for the departure runway, visibility must be reported to be 1/2 mile (800 meters). When weather is below approach and landing minimums (ceiling or visibility) a departure alternate is required.

5.9.1.3. Departure Alternate.

5.9.1.3.1. A departure alternate is required if weather is below landing minimums for the available approach (at departure aerodrome). Do not use CAT II ILS minimums to determine if a departure alternate is required. **(T-1)**

Section 5C—Preflight

5.10. Aircraft Servicing and Ground Operations.

5.10.1. Aircraft Refueling. Refer to [Chapter 9](#) for procedures.

5.10.2. Aircrew Dash One Preflight Inspection Requirements.

5.10.2.1. The aircrew dash one preflight inspection will remain valid until either:

5.10.2.1.1. Aircraft ground time exceeds 12 hours (72 hours provided the aircraft is sealed, not flown, and documented entry control is maintained).

5.10.2.1.2. Another maintenance dash six preflight is performed.

5.10.2.2. When an aircrew assumes a preflighted spare or quick turn, a thorough visual inspection will be performed. Ensure all mission specific equipment is inspected IAW TO 1C-130J-1. **(T-3)**

5.10.3. Fire Protection and Crash Rescue. See DAFMAN 13-217 and any MAJCOM-specific guidance (e.g. AMCI 11-208, *Mobility Air Forces Management*) for specific firefighting and rescue requirements. When required, the user will preposition suitable equipment at the LZ prior to conducting operations. **(T-3)**

5.10.3.1. The aircraft engine fire extinguisher system fulfills the minimum requirements for fire protection during engine start.

5.10.4. Aircrew and Maintenance Engine Runs. Refer to [Chapter 9](#) for procedures.

5.10.5. Towing. Refer to [Chapter 9](#) for procedures.

5.10.6. Aircrew members are prohibited from climbing onto the upper fuselage or wing surfaces unless there is an operational or training necessity (preflight checks as described in the flight manual). **(T-3)** When conditions dictate that aircrew members must climb onto upper fuselage or wing surfaces, they will do so only when conditions are dry, wind speed is below 20 knots, and there is no observable lightning within 10 NMs. **(T-3)** Consider use of additional ground members, if available, to assist in identifying hazardous conditions.

5.11. Aircraft Recovery Away from Main Operating Base. Refer to [Chapter 9](#) for procedures.

5.12. Aircrew Flight Equipment and Dash-21 Requirements.

5.12.1. Oxygen. Oxygen onboard for takeoff must be sufficient to accomplish the planned flight from the equal time point (ETP) to a suitable recovery base, should oxygen be required (minimum 5 liters for all flights). **(T-3)** Calculate crew requirements using the 100 percent Oxygen Duration Chart in the flight manual at 10,000 feet.

5.12.1.1. Aircrew oxygen and pressurization requirements are IAW AFMAN 11-202V3.

5.12.1.2. Crewmembers occupying a crew station will have an oxygen mask connected and readily available for use from before engine start until engine shutdown. **(T-3)**

5.12.1.3. On missions carrying passengers, distribute Emergency Passenger Oxygen System (EPOS) within easy reach of each passenger regardless of planned flight altitude. EPOS will be distributed and their use demonstrated before departure. **(T-3)**

5.12.1.4. Flight deck crew members will not use the loadmaster's emergency equipment (e.g. cargo compartment quick dons). **(T-3)**

5.12.2. Rafts. On overwater flights, do not carry more than 138 personnel, to include crewmembers.

5.12.3. Life Preserver Units (LPU). The loadmaster will place an LPU within easy reach of each passenger and aircrew member before takeoff on overwater flights. Crewmembers will fit and adjust LPUs for overwater flights and will wear them on overwater missions below 2,000 feet. **Exception:** LPUs need not be worn for takeoffs, landings, or approaches. Ensure the appropriate number and type of life preservers are aboard for overwater missions carrying children and infants. **(T-3)**

5.12.4. Parachutes:

5.12.4.1. Personnel performing duties near an open (or suspected open) door/hatch/ramp in-flight will be restrained by a safety harness, or wear a parachute. **(T-3)**

5.12.4.2. Either wear, or have prefit and prepositioned, parachutes and helmets during specified combat conditions. Loadmasters will wear a restraint harness instead of a parachute during airdrops below 800 feet AGL or when performing duties near an open exit above 25,000 MSL. **(T-3)**

5.12.5. MA-1 Portable Oxygen Bottles.

5.12.5.1. There are three types of A-21 regulators on MA-1 portable oxygen bottles: unmodified, modified and modified-2. Except for fill times, operation of the bottles are

identical. Refill valve type is determined by viewing the inside of the fill nozzle as specified below:

5.12.5.1.1. Unmodified: Refill valves have a push valve inside the nozzle resembling a standard tire valve stem.

5.12.5.1.2. Modified: Refill valves have a brass plate/filter covering inside of the nozzle and no valve stem is visible.

5.12.5.1.3. Modified-2 (Fast Fill): Refill valves have a brass plate/filter with a small hole in the middle covering inside the nozzle and no valve stem is visible. The filler valve also has a groove cut into the flat before the wrench flat.

5.12.5.2. Ensure a minimum of two unmodified/modified-2 bottles are installed on the aircraft, one in the cargo compartment and the other in the pilot position. Additional unmodified/modified-2 bottles should be installed in the cargo compartment first.

5.12.5.2.1. Home Station Departures. A waiver to the minimum number of required unmodified/modified-2 bottles may be granted on a case-by-case basis IAW [paragraph 4.3](#).

5.12.5.2.2. Enroute Departures. Maintain minimum number of unmodified/modified-2 bottles. If unable, continue until reaching a location with replacement bottle(s). (T-3)

5.12.6. NVD Departures.

5.12.6.1. NVD Departure Weather Minimums. Weather minimums for NVD departures for pilots who are non-current and/or unqualified is 1500/3. Current and qualified pilots, to include FTU instructor pilots conducting NVD departures with student pilots enrolled in an FTU syllabus, use standard takeoff weather minimum. Crews must give careful consideration to potential hazards during the critical phase of flight. Other weather limitations are IAW this AFMAN and AFMAN 11-202V3. NVDs have inherent limitations which can further be reduced by poor weather conditions. Crews will consider weather conditions, moon illumination and position, sky glow at dawn and dusk, cultural lighting, and weapon/expendable effects when planning NVD operations. (T-3)

5.12.6.2. NVD Malfunctions During Takeoff. NVD Malfunctions will be briefed prior to takeoff. (T-3) Consideration should be given if the PF experiences NVD failure takeoff may be continued at the discretion of the PIC. If NVD malfunctions occur after the PM states “rotate,” consideration should be given to either continuing the takeoff as the PF transitions to an IMC takeoff or transferring control of the aircraft as the situation dictates. If either pilot’s NVDs fail after takeoff, continue the climb out and follow the appropriate procedures for loss of NVDs. The PM will be ready to immediately assume aircraft control if the PF experiences spatial disorientation or an NVD malfunction. (T-3) Pilots must exercise sound and conservative judgment to continue NVD operations with aircraft malfunctions. See AFTTP 3-3.C-130J for additional NVD emergency information.

Section 5D—Enroute

5.13. Flight Progress. In-flight, use all available navigational aids to monitor Mission Computer performance. Immediately report malfunctions or any loss of navigation capability that degrades

centerline navigation solution accuracy beyond the airspace/procedure requirements to the controlling Air Route Traffic Control Center (ARTCC). (T-3)

5.13.1. Another pilot will verify waypoint data inserted into the Flight Management System (FMS). Check both the coordinate information and the distances between waypoints against the flight plan. (T-3)

5.13.2. Operations in International/Territorial Airspace. See [Chapter 8](#).

5.13.3. Oceanic Flight. See [Chapter 8](#).

5.13.4. BLK 8.1 Operational C2 Reporting.

5.13.4.1. Utilize Civil and/or Tactical datalink as the primary method of communication for routine mission information. (T-3)

5.13.4.2. Utilize the Air Operation Center (AOC) datalink functions as the primary means for enroute and airborne calls. (T-3)

5.13.4.3. Crews should initiate an AOC datalink logon for all flight managed sorties. (T-3)

5.13.4.4. Worldwide C2 Network. Datalinks are the primary means of access to the worldwide C2 network. HF is the secondary means. (T-3)

5.13.4.5. Civil Satellite Communication (SATCOM) (CSAT). Crews are authorized to use the CSAT phone at cruise (normally above 10,000 feet AGL) altitude or during non-critical phases of flight.

5.13.4.6. Link 16. See TO 1C-130J-1 and Link 16 CONOPS for operating procedures and restrictions.

5.13.4.7. Swift Broadband Unit (SBU). Refer to MAJCOM guidance for SBU usage.

5.13.5. Report inaccurate CFP winds to flight managers to pass to the controlling flight manager if the average wind for a route segment exceeds either 30° error in direction or 25 knots in speed.

Section 5E—Arrival

5.14. Instrument Approach Procedures. Instrument approach procedures will be IAW AFMAN 11-202V3.

5.14.1. Aircraft Category. The C-130J is a category "C" aircraft. If approach speeds exceed 140 Knots Indicated Airspeed (KIAS), use category "D". Exceptions to the 140 KIAS/Category D transition may apply to some ICAO procedures (e.g. see AFMAN 11-202V3, [Table 18.3](#), etc)

5.14.2. Flight Instrumentation Requirements.

5.14.2.1. Full flight instrumentation for a CAT I ILS and precision approach radar (PAR) includes a HUD or PFD at each station, and no shared Central Air Data Computer or INU attitude reference. (T-2)

5.14.2.2. Full flight instrumentation for a CAT II ILS includes an operational HUD in the PF position, a HUD or PFD at the PM position, and meeting the flight manual CAT II ILS criteria. **(T-2)**

5.14.2.3. Aircraft are limited to a Decision Height (DH)/Minimum Descent Altitude (MDA) based on a HAT of 300 feet and RVR 4000 ft or 3/4 SM visibility (1220 meters) with no RVR if full flight instrumentation is not operational. **(T-2)**

5.14.3. ILS Precision Runway Monitor (PRM) Approaches. Both pilots must be certified to conduct an ILS PRM approach. **(T-2)** Comply with the following operational procedures:

5.14.3.1. Two operational VHF communication radios are required. **(T-2)**

5.14.3.2. The approach must be briefed as an ILS/PRM approach. **(T-3)**

5.14.3.3. Reference AFMAN 11-202V3 if unable to accept an ILS PRM approach clearance. **(T-2)**

5.14.3.4. All breakouts from the approach shall be hand flown. Autopilots shall be disengaged when a breakout is directed. **(T-3)**

5.14.4. Should a TCAS Resolution Advisory (RA) be received, the pilot shall immediately respond to the RA. **(T-2)** If following an RA requires deviating from an ATC clearance, the pilot shall advise ATC as soon as practical. **(T-2)** While following an RA, comply with the turn portion of the ATC breakout instruction unless the pilot determines safety to be a factor.

5.14.5. CAT II ILS Procedures. DH is based on radar altitude. Minimum HAT is 100 feet (30m). Minimum RVR is 1000 feet (350m). Maximum crosswind component limitation is 10 knots. A crosswind component of up to 15 knots may be used for training approaches (requires weather of 200-1/2 or greater).

5.14.5.1. The following airfield and aircraft equipment must be operational (AFMAN 11-230, *Instrument Procedures*). **(T-2)**

5.14.5.1.1. Approach lights.

5.14.5.1.2. Runway centerline lighting.

5.14.5.1.3. High intensity runway lights or touchdown zone lights.

5.14.5.1.4. Approach end transmissometer.

5.14.5.1.5. ILS far field monitor.

5.14.5.1.6. Sequenced flashers.

5.14.5.2. Aircrews will not execute an IMC CAT II ILS below CAT I minimums unless both pilots are qualified and current in CAT II ILS. **(T-2)**

5.14.5.3. When performing CAT II ILS procedures on a CAT I ILS for training/evaluations, the DH is the HAT for the CAT I ILS. **(T-2)**

5.14.5.4. If an Approach Warning special alert is received prior to 300 feet AGL, the approach can be continued if the failure can be corrected prior to 300 feet AGL.

5.14.5.5. If an Approach Warning advisory is received below 300 feet AGL the PF will execute an immediate missed approach unless visual cues are sufficient to complete the approach and landing.

5.14.6. Non-Directional Beacon (NDB) Procedures. The HUD alone is not sufficient for NDB approaches. A head-down display, which depicts a bearing pointer tuned to the NDB, must be used in conjunction with the HUD throughout the approach. **(T-2)** NDB approaches may be flown during day, night, or IMC conditions after compliance with any airfield restrictions in GDSS/ASRR. Pilots should consider backing up each approach with available NAVAIDS/GPS to include loading the NDB coordinates in the FMS.

5.14.7. Self-Contained Approaches (SCA) (Independent Precision Radar Approach (IPRA) and LZ approaches). See AFMAN 11-202V3.

5.14.7.1. IMC Restrictions: Approaches may only be accomplished from a SCA developed IAW AFMAN 11-202V3. **(T-2)** Weather minimums for the SCA will be determined in the Terminal Instrument Procedures (TERPS) review based upon required navigation performance (RNP) criteria. Ceiling will be no lower than 300 feet and visibility will be no lower than RVR 4800 ft or 1 SM (1600 meters). **(T-2)**

5.14.7.1.1. For BLK 6.0 aircraft, a Figure of Merit (FOM) of 4 or less on both Navigation Solutions is required. **(T-2)** For Block 8.1 aircraft, the PIC will use Actual Navigation Performance (ANP)/Tactical Navigation Performance (TNP) of 0.07 or less on both Navigation Solutions as an alternative to FOM. For Block 8.1.1 aircraft, the PIC will use Estimated Position of Uncertainty of 0.07 or less on both Navigation Solutions as an alternative to FOM. **(T-2)** Both Pilots must verify RPI or LZ coordinates. **(T-2)**

5.14.7.1.2. For BLK 6.0 aircraft, Pos Alert 1 and Alert 2 must be set to 0.03 and 0.05 respectively for BLK 6.0 aircraft. **(T-2)** In CIVIL/MISSION mode for BLK 8.1, set Pos Alert 1 and 2 to 0.05 and 0.07 respectively. For BLK 8.1 aircraft, this will compare the current navigation solution to the unbiased EGI1 solution.

5.14.7.1.3. For IPRA Approaches, the ship solution must be selected as INAV 2. **(T-2)**

5.14.8. If the aircraft has already begun an Enroute Descent or Approach, and the reported weather decreases below the lowest compatible approach minimums, the PIC may elect to continue the approach IAW AFMAN 11-202V3.

5.14.8.1. If the approach is continued, sufficient fuel must be available to complete the approach and missed approach, and proceed to a suitable alternate with normal fuel reserve. **(T-2)**

5.14.8.2. The PIC has final responsibility for determining when the destination is below designated minimums, and for initiating proper clearance request.

5.14.9. Holding. An aircraft may hold at a destination that is below landing minimums, but forecast to improve to or above minimums provided:

5.14.9.1. The aircraft has more fuel remaining than that required to fly to the alternate and hold for the appropriate holding time, and the weather at the alternate is forecasted to remain at or above alternate filing minimums for the period, including the holding time.

5.14.9.2. Destination weather is forecasted to be at or above minimums before excess fuel will be consumed.

5.14.10. Block 8.1 RNAV and RNP Instrument Approach Procedures. All terminal RNAV and RNP procedures must be retrieved from the navigation database. RNAV and RNP procedures will not be flown with an expired database.

5.14.10.1. C-130J BLK 8.1 aircrews are authorized to perform RNAV and RNP operations to include instrument departures, arrivals, and approaches, using LNAV, LNAV/VNAV, and LPV lines of minima.

5.14.10.1.1. RNAV and RNP operations are only authorized in CIVIL mode.

5.14.10.1.2. RNAV (RNP) Authorization Required (AR) approaches are not authorized. **NOTE:** These approaches are charted as “RNAV (RNP)” in the U.S. and as “RNP APCH AR” by ICAO.

5.14.10.2. Lateral Navigation (LNAV) Approaches. LNAV approaches are non-precision approaches and may be flown IMC to a LNAV minimum descent altitude (MDA). They may also be flown using Vertical Navigation (VNAV) procedures to a derived decision altitude (DDA). The DDA is calculated by adding +50 ft to the LNAV MDA line of minima.

5.14.10.2.1. During non-localizer based approaches where the FMS is used for final approach course guidance (VOR, TACAN, NDB), pilots will tune, identify, monitor, and display the appropriate ground-based (raw) NAVAID.

5.14.10.3. VNAV Approaches (LNAV/VNAV line of minima). VNAV procedures are classified as approaches with vertical guidance (APV). APVs provide course and glide path deviation information not designed to meet stringent standards of a precision approach. VNAV approaches may be flown IMC to a LNAV/VNAV DA.

5.14.10.3.1. Baro-VNAV. VNAV is barometric aided, but the FMS-generated vertical path is not compensated for temperature. IAP temperature restrictions for uncompensated Baro-VNAV systems must be complied with. Crews will apply temperature corrections from the FIH to altitudes (as required) to comply with the aircraft’s non-compensated Baro-VNAV system.

5.14.10.4. Reference Altitude for APVs (LNAV/DDA, LNAV/VNAV). Prior to glide slope intercept, the reference altitude will be set to at or below the DA. When past the Final Approach Fix (FAF) and more than 300 ft below the missed approach altitude, the reference altitude will be set to the missed approach altitude.

5.14.10.5. LPV Approaches. LPV approaches are APVs which take advantage of space-based augmentation systems (SBAS). The SBAS generated angular guidance allows the use of the same TERPS approach criteria used for ILS approaches. LPV minima may have a decision altitude as low as 200 feet height above touchdown with visibility minimums as low as 1/2 mile (AIM 1-1-32).

5.14.10.5.1. When SBAS is available and within 100 nm of the destination, “LPV XX” (where XX is the selected runway identifier) is displayed in the bottom right of the HUD indicating LPV guidance is available (if desired) for the approach loaded. If LPV is not indicated the crew will not use LPV minimums. **(T-2)**

5.14.10.5.2. Pilots will only use the LP line of minima if approved in the TO 1C-130J-1. LP approaches are flown to non-precision MDA and do not have vertical guidance. **NOTE:** LP is not a fail-down mode for LPV; an SBAS receiver may not support LP even if it supports LPV.

5.14.10.6. Reference Altitude for APVs (LNAV/DDA, LNAV/VNAV). Prior to glide path intercept, the reference altitude will be set to at or below the DA. When past the FAF and more than 300 ft. below the missed approach altitude, the reference altitude will be set to the missed approach altitude.

5.14.10.7. Approach Plate Comparison. The FMS courses must be within 5 degrees of the charted courses to fly a Performance Based Navigation (PBN) Instrument Approach Procedure.

5.14.10.7.1. A properly functioning PBN system, containing a current and accurate navigational database, should fly the correct ground track for any loaded instrument procedure, despite differences in the displayed magnetic course (AIM 1-1-29).

5.14.10.7.2. If a 700NM white line is desired off of the FAF, aircrews must refer to the legs-calculated course for input into the INTC CRS TO function at LSK R6.

5.14.10.7.2.1. The input of the charted course could place the aircraft on the incorrect ground track.

5.14.10.7.2.2. Situational awareness on preceding step-downs and courses will be lost when direct to the FAF.

5.14.10.8. RAIM. RAIM alerting is not required/available when the aircraft is RNP capable or when SBAS coverage is available. CNI-MU Predictive RAIM results are used for planning purposes only.

5.14.10.9. Radius-to-Fix (RF). The Block 8.1 FMS does support RF legs. An RF leg is defined as a constant radius circular path, around a defined turn center, that starts and terminates at a fix. An RF leg may be published as part of a procedure (AC 90-101A).

5.14.10.10. WGS-84 compliance. Individual country compliance with the WGS-84 means that the country's NAVAID and obstacle database conforms to the same U.S. grid standard that today's updated avionics use to determine position. U.S. National Airspace System (NAS)/Canadian Domestic Airspace is WGS-84 compliant. WGS-84 compliance is one of several items which are monitored to determine if a country's published RNAV/RNP terminal procedures are authorized for use by USAF aircrews. PICs will check www.jeppesen.com to determine country compliance. On the Jeppesen home page, type "WGS-84 Status" in the search field to access the compliance list. Only those countries that are WGS-84 compliant may be flown using FMS guidance in the terminal environment.

5.14.11. ILS Special Authorization (SA) CAT I Approach. CAT II qualified and current C-130J crews are authorized to fly SA Cat 1 Approaches to as low as 150 feet (50m) radar altimeter (RA) decision height (DH) and 1400 RVR (450m) at runways with reduced lighting (no touchdown zone or centerline lighting). Procedurally, the crew will fly a SA CAT I ILS approach the same as a CAT II ILS approach. **(T-1)** All CAT II limitations (crosswinds, autopilot status, required equipment, etc.) must be met. **(T-1)** If the crew receives a CAT II

unsafe annunciation above 300 feet, they may elect to continue to the normal CAT I minimums to the same runway (no lower than 200 feet DH). If a CAT II unsafe annunciation is received below 300 feet, the crew will immediately commence a go-around, unless visual cues are sufficient to complete the approach to landing. **(T-1)** Use of the HUD to DH is mandatory. SA CAT II ILS approaches are not authorized.

5.14.12. Performance Based Navigation Segmented Approach guidance.

5.14.12.1. **(BLK 8.1)** Approaches with PBN initial, intermediate and/or missed approach segments extracted from current and certified navigation databases may be flown as long as the aircraft and crew is currently permitted to fly RNAV (GPS) approaches. PBN transitions to conventional final approach segments (ILS) are normally designed under RNAV 1 or RNP 1 navigation specification criteria. Caution should be used as some approaches also include RF (Radius to Fix) legs, which require A-RNP capability. These Instrument Approach Procedures are to be extracted in their entirety (to include the missed approach segment) from a certified aircraft navigation database without alteration, and follow the same operational practices/procedures/approvals as RNAV (GPS) Approaches. If aircraft/aircrew are not capable of flying RNAV (GPS) approaches the crew is still able to fly PBN segmented approaches, but will have to coordinate for vectors to final or alternate missed approach instructions, as authorized by the approach procedure.

5.15. NVD Approach and Landing.

5.15.1. NVD Approach Weather Minimums. Weather minimums for NVD visual approaches, NVD visual pattern work, and pilots who are non-current and/or unqualified is 1500/3. **(T-3)** Current and qualified NVD aircrews, to include FTU instructor pilots conducting NVD approaches with student pilots enrolled in an FTU syllabus, may fly IFR approaches with weather at approach minimums. Crews must give careful consideration to the potential hazards during these critical phases of flight. Other weather limitations are IAW this AFMAN and AFMAN 11-202V3.

5.15.2. NVD Malfunction during Approach and Landing. If one of the pilots experiences NVD failure on short final, it will be at the discretion of the PIC whether or not to transition to normal lights or perform a go-around. The PM will be ready to immediately assume aircraft control if the PF experiences spatial disorientation or an NVD malfunction. **(T-3)** Pilots must exercise sound and conservative judgment to continue NVD operations with aircraft malfunctions. Tactical and safety considerations will dictate the final course of action. See AFTTP 3-3.C- 130J for additional NVD emergency information.

5.16. Insect and Pest Control. Insect and pest control mitigation will be IAW AFMAN 11-202V3 applicable supplements and the procedures below.

5.16.1. When spraying is required, use insecticide, aerosol d-phenothrin-2 percent, National Stock Number (NSN) 6840-01-067-6674 (or equivalent), to spray the aircraft. Wear leather or Nomex® gloves while spraying. **(T-1)**

5.16.1.1. Direct the nozzle toward the ceiling of the compartment or space being sprayed. **(T-2)**

5.16.1.2. Spray spaces inaccessible from within the aircraft after completely loading fuel, baggage cargo, and passengers, wheel wells, and other similar spaces. **(T-2)**

5.16.1.3. Spray the cabin, cockpit, and other spaces accessible from within the aircraft after the crew is aboard and after closing all doors, windows, hatches, and ventilation openings. **(T-2) CAUTION:** If the insecticide label directs disembarkation after use, spray before boarding crew or passengers. Close all doors and hatches for 10 minutes after dispensing and ventilate for 15 minutes before allowing anyone on board. **(T-1)**

5.16.2. Spray for 105 seconds unless longer periods are specified for the country being transited. **NOTE:** Keep used aerosol cans separate from other trash so they may be disposed of safely.

5.16.3. Procedure at Aerial Port of Disembarkation (APOD). On arrival at an APOD, do not open cargo doors or hatches except to enplane officials required to inspect the aircraft for insect or rodent infestation. Do not onload or offload cargo or passengers until the inspection is satisfactorily completed. This procedure may be altered to satisfy mission or local requirements, as arranged by the base air terminal manager or the local C2 organization. **(T-1)**

Section 5F—Miscellaneous

5.17. Cockpit Voice Recorder (CVR). If involved in a mishap or incident, after landing and terminating the emergency, pull the CVR power circuit breaker (ECB #464) and the Flight Data Recorder (ECB #461). **(T-3)**

5.18. Passenger Restrictions. No-show passenger baggage or baggage of passengers removed from flight will be downloaded prior to departure. See exceptions in AFMAN 11-202V3 and applicable supplements. **(T-2)**

5.19. Cockpit Congestion and Loose Objects.

5.19.1. The maximum number of persons on the flight deck should be the minimum commensurate with the mission requirements. At no time should this exceed six. **(T-3)**

5.19.2. No items (checklists, charts, etc.) will be placed on the power lever quadrant during critical phases of flight. **(T-3)**

5.19.3. Ensure no items impede flight control movement. **(T-3)**

5.19.4. Place only soft items on the top bunk. **(T-3)**

5.19.5. Store only the minimum amount of professional gear required to accomplish the mission on the flight deck. Additional items will be secured in the cargo compartment. All items will be secured before passing the combat entry point through the combat exit point. **(T-3)**

5.19.6. Reference [paragraph 4.3](#) for additional personnel restrictions. **(T-3)**

5.20. Hung Ordnance Procedures. Conduct the following procedures after the live firing of chaff/flares or if the crew suspects aircraft battle damage:

5.20.1. After landing, taxi to the de-arm area or another suitable safe location to check for hung ordnance. **(T-3)**

5.20.2. The loadmaster or another qualified crewmember will deplane the aircraft and check all chaff/flare dispensers for hung ordnance or damage. **(T-3) NOTE:** ALE-47 flare squibs that fail to fire are not considered hung ordnance.

5.20.3. If hung ordnance is found, identified by a protruding or partially ejected flare cartridge, the aircraft will remain in a de-arm area until Explosive Ordnance Disposal (EOD) personnel meet the aircraft. The aircraft must remain in the designated safe area until EOD personnel can clear all hung ordnance. **(T-3)**

5.20.4. If hung ordnance is not found, the aircraft can proceed to the parking location.

Chapter 6

AIRCRAFT SECURITY

6.1. General. This chapter provides guidance on aircraft security and preventing and resisting aircraft piracy (hijacking). AFI 13-207, *Preventing and Resisting Aircraft Piracy (Hijacking)*, AFI 31-101, *Integrated Defense*, and specific MAJCOM security publications contain additional guidance. Aircrews will not release information concerning hijacking attempts or identify armed aircrew members or missions to the public.

6.2. Security. The C-130J is a “Protection Level 3” resource. Aircraft security at non-United States military installations is the responsibility of the controlling agency.

6.3. Integrated Defense. The following security procedures for C-130J aircraft were developed IAW AFI 31-101.

6.3.1. The aircraft will be parked in an established restricted area and afforded protection via a roving patrol, a two-person Internal Security Response Team (ISRT), with immediate response not to exceed 3 minutes, and a two-person External Security Response Team, (ESRT) with response capability within 5 minutes IAW AFI 31-101.

6.3.2. When no permanent or established restricted area parking space is available, establish a temporary restricted area consisting of a raised rope barrier, and post with restricted area signs. Portable security lighting will be provided during the hours of darkness if sufficient permanent lighting is not available. Post security forces IAW AFI 31-101.

6.3.3. At non-United States military installations, the PIC determines the adequacy of local security capabilities to provide aircraft security commensurate with this chapter. If the PIC determines security to be inadequate, the aircraft should be flown to a station where adequate security is available.

6.3.4. The security force must be made aware of all visits to the aircraft. The security force POC must be identified to the PIC.

6.3.5. Security support is a continual requirement and is not negated by the presence of aircrew or ground crew members. Security force support terminates only after the aircraft doors are closed and the aircraft taxis.

6.3.6. Locking and Sealing. Lock or seal the aircraft during a “Remain Over Night” (RON) on non-secure ramps.

6.4. Arming of Crewmembers. Crew arming is IAW mission directives (Mission Detail, SPINS, OPORD, etc.). Crews armed for anti-hijacking normally arm with hollow-point ammunition. Crews armed for force protection normally arm with ball-type ammunition. If a crewmember leaves the aircraft, they must use only ammunition approved/directed per regional guidance (SPINS, OPORD, FCG, etc.). **(T-1)** When arming for Anti-Hijacking, at least one aircrew member on the flight deck and in the cargo compartment will be armed. **(T-1)**

Chapter 7

TRAINING AND OPERATING LIMITATIONS

7.1. Passengers on Training Missions. Passengers on training missions will be IAW DAFMAN 11-401.

7.1.1. Passengers are not authorized during initial qualification or requalification training. **(T-2)**

7.1.2. Mission qualification training, evaluations, off station trainers, and JA/ATTs may carry passengers only if the aircrew in training is qualified (AF Form 8, *Certificate of Aircrew Qualification* on file documenting successful completion of an aircraft checkride). **(T-2)**

7.1.3. Multiple practice approaches, touch-and-go landings, stop-and-go landings, simulated emergency training, modified contour low level routes and airdrops are prohibited with passengers onboard. **(T-2) Exception:** Personnel scheduled to jump following a heavy equipment/CDS airdrop, safeties, MEP (defined in DAFMAN 11-401), exercise participants that will be offloaded by airland procedures following the airdrop, identified base orientation flight personnel (may fly on local training missions) or any personnel authorized by the JA/ATT tasking order may be transported on airdrop training missions.

7.2. Touch-and-Go Landing Limitations.

7.2.1. Touch-and-go landings will only be accomplished under the direct supervision of an IP or AC certified to perform touch-and-go landings. **(T-2)**

7.2.1.1. Ground idle touch-and-go landings may be performed by any pilot from either seat, when a flight examiner pilot, instructor pilot, or an instructor pilot candidate during upgrade training/evaluation occupies a pilot's seat.

7.2.2. Limitations:

7.2.2.1. Minimum runway length for 50% flap flight idle touch-and-go landings is 5,000 feet. Minimum runway length for all other touch-and-go landings is 6,000 feet. **(T-3)**

7.2.2.2. Minimum ceiling/visibility: 300 feet and RVR 4000 ft (3/4 SM visibility) with an IP, 600 feet ceiling and 2 miles visibility for ACs. **(T-3)**

7.2.2.3. Authorized when crosswind component corrected for RCR is within the recommended zone of the Performance Manual Crosswind Chart for takeoff and landing.

7.2.2.4. Do not accomplish touch-and-go landings on slush-covered runways. **(T-3)**

7.2.2.5. Authorized when normal wake turbulence criterion are met.

7.2.2.6. Do not perform no-flap ground-idle touch-and-go landings. **(T-3)**

7.2.2.7. Touch-and-go landings may be performed with cargo onboard provided the PIC and LM determine suitability of cargo. Touch-and-go landings with hazardous cargo on board are prohibited. **(T-3)**

7.2.3. Include type of touch-and-go as part of the briefing, (e.g., ground-idle or flight-idle). **(T-3)**

7.2.4. The PIC will brief a go/no-go decision point during touch & go procedures (e.g. the “power set” call). **(T-3)** Consideration should be given to runway available, planned touchdown point, distance travelled during configuration time (normally 5 to 7.5 seconds), and required stopping distance. For relatively minor malfunctions it is more risky to try to abort a takeoff at high speed than to continue the takeoff. For emergencies where the takeoff cannot be safely continued, the PIC will also brief a commit point by which the abort decision must be made in order to safely stop within the remaining runway. Reference runway distance remaining markers, other runway markings or adjacent landmarks. **(T-3)**

7.3. Simulated Emergency Flight Procedures. Simulated emergency flight procedures will be conducted IAW AFMAN 11-202V3 the aircraft flight manual, and this AFMAN.

7.3.1. Simulated Engine Failure. Direct IP supervision required except for IP candidates under the supervision of flight examiner during initial or requalification upgrade evaluations to IP. One power lever may be retarded to FLIGHT IDLE at not less than V_{MCA} (one-engine inoperative, out of ground effect) nor less than 300 feet AGL. **(T-3)**

7.3.2. Weather. Simulated engine failure is authorized in daylight IMC if the weather is at or above circling minimums and at night with weather at or above 1,000 foot ceiling and 2 SM visibility or circling minimums whichever is higher. Crosswind component must be within the recommended zone of the Performance Manual Crosswind Chart for landing. **(T-3)**

7.3.3. Restrictions:

7.3.3.1. Engine out no-flap landings are restricted to AC candidates and above. **(T-3)**

7.3.3.2. Planned go-arounds from simulated engine-out no-flap approaches are not authorized. Required go-arounds from engine out no-flap approaches require setting the flaps to 50% and using all four engines. **(T-3)**

7.3.3.3. Do not compound engine out circling approaches with any other simulated malfunctions. **(T-3)**

7.3.3.4. Engine out go-arounds must be accomplished by 300 feet AGL.

7.4. Flight Maneuvers.

7.4.1. Practice of the following maneuvers are prohibited in flight:

7.4.1.1. Full stalls. **(T-2)**

7.4.1.2. Rudder force reversals. **(T-2)**

7.4.1.3. Spins. **(T-2)**

7.4.1.4. Simulated runaway trim malfunctions. **(T-2)**

7.4.1.5. Simulated hydraulic system loss by turning engine driven hydraulic pumps off. **(T-2)**

7.4.1.6. Simulated two-engine approaches or landings. **(T-2)**

7.4.1.7. Simulated engine-out takeoffs. **(T-2)**

7.4.2. Permissible in-flight maneuvers. The maneuvers listed below are authorized for qualification and continuation training. They are applicable to all C-130J aircraft except when

prohibited or restricted by the flight manual or other current directives. The pilot or IP will alert all crew members prior to accomplishing the following:

7.4.2.1. Approach to Stalls: Direct IP supervision required, authorized during day VMC. Follow restrictions in TO 1C-130J-1 for practice stalls. Additionally, the maneuver will be accomplished at a minimum of 5,000 feet above any cloud deck. Apply the Stall Recovery Procedure at the first indication of stall. **(T-3)**

7.4.2.2. Slow Flight: Direct IP supervision required. Authorized at or above 5,000 feet AGL. Fly at approach and no slower than threshold speed with gear down and flaps 0%, 50%, or 100%. Do not exceed 15 degrees of bank. **(T-3)**

7.5. Operating Limitations.

7.5.1. Unless specifically authorized elsewhere, do not practice emergency procedures that degrade aircraft performance or flight control capabilities. **(T-3)**

7.5.1.1. In an actual emergency, terminate all training and flight maneuvers practice. **(T-3)**

7.5.2. Low/Missed Approaches. Initiate a planned missed approach no lower than:

7.5.2.1. Precision approach - DH (or 200-foot HAT, whichever is higher for practice emergency involving a simulated engine shutdown). **(T-3)**

7.5.2.2. Non-precision approach - Minimum altitude depicted on approach plate. **(T-3)**

7.5.2.3. Visual Approach - 200 feet AGL for simulated emergencies (no minimum for non-emergency). **(T-3)**

7.5.2.4. Restricted Low Approach (aircraft, equipment, or personnel are on the runway) - 500 feet AGL. **(T-3)**

7.6. Night Vision Device Training.

7.6.1. Crews will accomplish aircrew training according to AFMAN 11-2C-130JV1 and MAJCOM-approved training guides before performing NVD operations. **(T-3)**

7.6.2. Pilots who are both Touch-and-Go certified and NVD Airland Certified may perform NVD Touch-and-Go landings IAW [paragraph 7.2](#) to include FTU instructor pilots conducting NVD departures with student pilots enrolled in an FTU syllabus. **WARNING:** Crews must be thoroughly familiar with the visual cues required to identify the amount of runway remaining when performing Touch-and-Go operations.

7.7. Landing Limitations.

7.7.1. No-Flap Approach Limitations:

7.7.1.1. Direct IP supervision required. **(T-3)**

7.7.1.2. Do not combine no-flap circling approaches with any other simulated emergencies. **(T-3)**

7.7.1.3. Maximum gross weight is 120,000 lbs. **(T-3)**

7.7.1.4. Authorized in daylight IMC if the weather is at or above circling minimums and at night with weather at or above 1,000 foot ceiling and 2 SM visibility or circling minimums whichever is higher. **(T-3)**

7.7.1.5. Use 50% flaps for a go-around. **(T-3)** *NOTE:* Check no-flap landing distance with runway available. **(T-3)**

7.7.2. No-Flap Landing Limitations:

7.7.2.1. Authorized in short-body aircraft only. **(T-3)**

7.7.2.2. Crosswind component must be within the recommended range on the crosswind chart. **(T-3)**

7.7.3. Stop-and-Go Landing Criteria:

7.7.3.1. Authorized only on designated training, evaluation, or currency missions. **(T-3)**

7.7.3.2. Authorized to be performed by any C-130J qualified pilot.

7.7.3.3. Runway remaining for takeoff must be sufficient to allow rotation and refusal speeds to be equal. **(T-3)**

7.7.3.4. Crosswind component corrected for RCR must be in the recommended zone of the landing crosswind chart. **(T-3)**

7.7.3.5. Ceiling and visibility must be at least 300 feet and 3/4 mile (RVR 4,000 ft). **(T-3)**

7.7.4. Do not perform Stop-and-Go landings:

7.7.4.1. In conjunction with no-flap landings. **(T-3)**

7.7.4.2. When normal wake turbulence criterion are not met. **(T-3)**

7.7.4.3. When intercepting or crossing the flight path of a wide-bodied aircraft while performing an approach or landing. **(T-3)**

7.7.5. Crews should not terminate or conduct operations requiring extended brake applications (i.e., Engine Running Offload (ERO), seat swap, etc.) following a landing with "full anti-skid braking" unless they have confirmed their brake energy using the TO 1C-130J1-1 charts. On normal landings, crews should consider extending rollout to minimize the use of the brakes.

7.8. Actual Engine Shutdown and Airstart. Direct IP supervision required. One engine may be shutdown at not lower than 2,500 feet AGL in daylight VMC. **(T-3)**

7.9. Aborted Normal Takeoff. Direct IP supervision required. Authorized during formal upgrade training in daylight. Crosswind component must be within the recommended zone of the takeoff crosswind chart. Runway must be dry, hard-surfaced, and long enough to allow refusal and takeoff speeds to be equal. Initiate the abort by stating "REJECT" before refusal speed. Do not practice aborts from touch-and-go or stop-and-go landings. Prebrief all actual engine shutdowns due to a simulated malfunction. Requires OG/CC approval. **(T-3)**

7.10. Aborted Maximum Effort Takeoff. Direct IP supervision required. Authorized for AC upgrades and above during formal upgrade training. Restricted to the main runway during daylight. Crosswind component must be within the recommended zone of the takeoff crosswind chart. Runway must be dry, hard-surfaced and long enough to allow refusal and takeoff speeds to

be equal. Simulate a runway length less than CFL. Initiate the abort by stating "REJECT" at or below a refusal speed based on simulated runway length. Compare distance traveled to runway length and point out the ramifications of operating with less than critical field length. Subsequent aborted takeoffs can lead to excessive brake heating. Brakes must be allowed to cool between aborted takeoffs. Do not shut down an engine due to simulated malfunctions. Do not practice aborted maximum effort takeoffs from stop-and-go landings. Requires OG/CC approval. **(T-3)**

Table 7.1. Training Restriction Summary.

Simulated Engine Failure	<p>Prohibited during tactical operations. (T-3)</p> <p>Retard one throttle to flight idle at not less than V_{MCA} (one-engine inoperative, out of ground effect) nor less than 300 feet AGL. (T-3)</p>
	<p>Authorized day IMC if WX at or above circling minimums or night if weather is at or above 1,000 foot ceiling and 2 SM visibility or circling minimums, whichever is higher. (T-3)</p> <p>Crosswind component must be in the recommended zone. (T-3)</p> <p>Engine out no-flap landings are restricted to MPD pilots and above, and planned go-arounds are not authorized. (T-3)</p> <p>Engine out circling approaches will not be compounded with any other simulated malfunctions. (T-3)</p> <p>Go-Arounds must be initiated by 300 feet AGL</p>
No-Flap	<p>Prohibited during tactical operations. (T-3)</p> <p>No-flap circling approaches are authorized and will not be combined with any other simulated emergencies. (T-3)</p> <p>Maximum gross weight is 120,000 lbs. and crosswind component must be within the recommended range. (T-3)</p> <p>Authorized day IMC if WX at or above circling minimums or night if weather is at or above 1,000 foot ceiling and 2 SM visibility or circling minimums, whichever is higher. (T-3)</p> <p>No-flap landings are authorized in short-body aircraft only (T-3)</p>

Touch-and-Go Landings	<p>Requires certification. (T-3)</p> <p>MPs restricted to flight idle touch-and-go landings. (T-3)</p> <p>Ground-idle performed by any pilot from any seat when a flight evaluator, IP, or IP candidate during upgrade/evaluation occupies a pilot's seat. (T-3)</p> <p>No-flap ground-idle touch-and-go landings not authorized. (T-3)</p> <p>Minimum runway length: flaps 50 percent Flight idle, 5,000 feet - for all other, 6,000 feet. (T-3)</p> <p>Crosswind component corrected for RCR is within recommended zone. (T-3)</p> <p>Minimum ceiling of 600 feet and minimum visibility of 2 SM (300 feet and RVR 4000 ft (3/4 SM visibility) if an IP is in either seat). (T-3)</p>
Go-around, Missed Approaches	<p>Minimum altitude is 500 feet AGL when aircraft, equipment, or personnel are on the runway. (T-3)</p> <p>VFR - No lower than 200 feet AGL when practicing simulated emergencies. (T-3)</p> <p>Practice instrument approaches - no lower than minimum altitude for the approach. (T-3)</p>
Slow Flight	<p>At or above 5,000 feet AGL. (T-3)</p> <p>Fly at approach, threshold, and 1.2 times stall speed with gear down and flaps 0, 50, or 100 percent. (T-3)</p> <p>Do not exceed 15 degrees of bank. (T-3)</p>
Approach to Stalls	<p>Requires day VMC at a minimum of 10,000 feet AGL and 5,000 feet above cloud deck. (T-3)</p>

Chapter 8

NAVIGATION PROCEDURES

8.1. Navigations Procedures. Navigation procedures will be IAW AFMAN11-202V3, FLIP area planning documents, and applicable MAJCOM guidance.

8.2. Long Range Navigation and Oceanic Planning. For general planning and oceanic flight information, aircrews should reference AFMAN 11-202V3, specific region procedures, and applicable NOTAMS for unique or temporary applications and resources.

8.2.1. First Suitable Airfield (FSAF) and Last Suitable Airfield (LSAF). Utilized in the equal time point (ETP) calculation. These are represented as the “First Nearest” and the “Last Nearest” airports in the ETP calculation in the PROGRESS pages of the CNI. They are airports closest to the coast-out and coast-in waypoints that meet applicable criteria for C-130J operations

8.2.2. Refer to [Chapter 11](#) to accomplish fuel planning.

8.2.3. Equal Time Point (ETP). Point along a route at which an aircraft may either proceed to FSAF or return to LSAF in the same amount of time based on all engines operating. FSAF/LSAF are the airports closest to the coast-out and coast-in route of flight that meet applicable destination alternate requirements except weather. Forecast weather conditions for LSAF/FSAF (Estimated Time of Arrival (ETA) +/- 1 Hour) will meet or exceed minimums for the lowest compatible approach or 500/1, whichever is greater.

8.2.3.1. ETPs must be annotated and plotted on the MPC and Master Flight Plan (MFP) prior to the coast-out waypoint. **(T-3)** For BLK 6.0 aircraft Enter ETP information into the CNI PROGRESS page during preflight, as long as flight is contained within the same nav database. CNI-computed ETPs only become accurate upon reaching the PERF CRUISE altitude. CNI-computed ETPs can be obtained for different airspeeds (e.g. 260 Knots True Airspeed (KTAS) for a 3-engine scenario). Refer to TO 1C-130J-1-5 for additional BLK 8.1 ETP information.

8.2.3.2. The blocks provided on top of the C130J High PFPS CFP should be used to record information needed by the CNI to compute an ETP. These blocks and provided formulas also serve as a worksheet for crews to do manual ETP computations. The Mobility Air Force Planning System (MAFPS) has information on the bottom of the flight plan for manual ETP calculations. If using the computer programs or the CNI, annotate applicable information on the MFP. If the CNI is used, annotate “CNI” in the master flight plan blocks for which the CNI does not present a number.

8.2.3.3. To compute a manual ETP and verify MAFPS calculations refer to AFMAN 11-202V3.

8.2.3.4. The INDEX FROM/TO and PROGRESS pages may also be utilized in flight to update times and distances to diversion bases along the route of flight. For BLK 6.0 aircraft, an accurate ground speed must be entered in order to obtain correct Estimated Time Enroute (ETE) calculations. For BLK 8.1 aircraft, the PROGRESS 5/5 page will automatically update the five nearest database airports to your present position and can be utilized to gain SA on potential diversion options.

8.3. Long Range Navigation and Oceanic Procedures. Crews will use the Long Range Navigation checklist in **Figure 8.1 (T-3)** when operating in RNAV-10 (RNP-10), North Atlantic Region, or Remote Continental (no reliable fix at least once each hour from ICAO ground-based NAVAIDs) airspace, in addition to current guidance for the operating airspace. For North Atlantic Region operations, requirements are annotated as North Atlantic High Level Airspace (NAT HLA) in **Figure 8.1**. For unique mission requirements, units may augment the Long Range Navigation checklist with local supplements such as altitude reservation, formation, but in no case will they substitute for this checklist. **(T-3)**

8.4. Aircraft Specific Procedures. This section and **Figure 8.1** provide C-130J specific guidance for applying long range navigation or oceanic procedures in addition to operations in the North Atlantic Region and other oceanic airspace. Specific aircraft procedures for RNP RNAV airspace are addressed in subsequent sections.

8.4.1. For long range navigation operations in oceanic airspace, crews should refer to TO 1C-130J-1 **Chapter 18B**. Refer to **Chapter 3** for the navigation Minimum Equipment List (MEL) for specific airspace requirements.

8.4.2. One CFP and one plotting chart will be used as master copies for each flight utilizing long range navigation or oceanic procedures. Both will be labeled “MASTER COPY” and will be referred to as Master Flight Plan (MFP) and Master Plotting Chart (MPC). Both will be retained IAW AFMAN 11-202V3 and applicable supplements. **(T-3)**

8.4.3. Route Programming.

8.4.3.1. One pilot will load the route of flight directly from the filed flight plan, MFP or data transfer card into the CNI and verify both the magnetic course and the leg distance for each waypoint with the MFP. **(T-3)** Loading the route directly from the filed flight plan may minimize pilot/controller clearance loop (misinterpretation) errors. Label waypoints so they can be readily identified for subsequent position reporting. If the courses differ by more than 2° or the distances differ by more than 2 NM, the pilot will resolve the discrepancy prior to flight. **(T-2)** Completion of this step will be annotated with a checkmark (✓) next to the waypoint. **(T-3)**

8.4.3.1.1. Verify the total distance to the destination on the CNI PROGRESS page. **(T-3)** Any significant disparity (more than 25 NM) in the total distance between the CNI and MFP should require a recheck of the ramp position and waypoint coordinates.

8.4.3.1.2. For BLK 8.1 aircraft, create custom data waypoints for oceanic latitude/longitude points using the corresponding examples below. CPDLC transmissions will be discernible by controlling agencies as the following are ARINC 424 standard nomenclature **Table 8.1**:

Table 8.1. BLK 8.1 Standard Nomenclature.

N latitude/W longitude	N52 00/W075 00 = 5275N
N latitude/E longitude	N50 00/E020 00 = 5020E
S latitude/W longitude	S52 00/W075 00 = 5275W
S latitude/E longitude	S50 00/E020 00 = 5020S
Half-Degree Latitude	52 30'N/050W = 5250H

8.4.3.2. The other pilot will verify the waypoint coordinates and course and distance information from the opposite side CNI to the MFP. **(T-3)** Completion of this step will be annotated with the check-mark being circled on the MFP. **(T-3)**

8.4.3.2.1. If the planned route of flight is a stored route or one loaded during a data transfer, verification of waypoint coordinates must be accomplished by both pilots in the same manner. **(T-3)**

8.4.3.3. Using the LEGS pages, insert the forecast winds (if available) at each waypoint. **(T-3)**

8.4.4. Ground Speed Check. Before taxiing the aircraft, check INS/INAV ground speed by checking each pilot's ground speed on the CNI-MUs or HDDs/HUDs. Ground speeds in excess of 0 knots while the aircraft is stationary may indicate a faulty INS. While taxiing, check ground speed for reasonable indication.

8.4.5. Communication/Navigation/Identification Management System (CNI-MS).

8.4.5.1. In addition to **Chapter 5** requirements, when configuring for long range navigation operations, both pilots will:

8.4.5.1.1. For BLK 6.0 aircraft, verify INAV Position Alert 1 and INAV Position Alert 2 are set appropriately for the airspace in which the aircraft is operating and IAW TO 1-C-130J-1 Chapter 18B. For operations in RNAV-10 (RNP-10), North Atlantic Region, or Remote Continental airspace it is recommended to set INAV Position Alert 1 to 5.0 NM on the CNI PROGRESS page to give early indication of the EGI/GPS position being questionable. **(T-3)**

8.4.5.1.2. For BLK 8.1 aircraft, verify Civil/FMS is selected on NAV CONTROL 1/3 page and ensure the RNP value on PROGRESS RNP 4/5 page reflects correct RNAV value. **(T-3)**

8.4.6. Navigation Accuracy Check.

8.4.6.1. Before oceanic entry:

8.4.6.1.1. For BLK 6.0 aircraft, check accuracy of EGI/GPS position and INS position, versus a ground-based NAVAID (e.g. the chosen NAVAID checkpoint reference position (REF POS)). **(T-3)** If discrepancies greater than 5 NM exist, immediate action may be required. It is not advisable for crews to attempt to correct an error by doing an in-flight alignment or manually updating the INS since this has often contributed to a Gross Navigation Error. If cause of the discrepancy cannot be detected and corrected, crews should not enter oceanic airspace.

8.4.6.1.2. For BLK 8.1 aircraft, check the accuracy of the CIVIL/FMS position versus a ground based NAVAID and ensure UNABLE RNP MASTER CAUTION is not displayed. **(T-3)**

8.4.7. Oceanic Clearance. The PIC will designate the duties of flying the aircraft and copying/monitoring clearances so that they are clearly understood by all crewmembers. The PM will normally receive and record the oceanic clearance on the MFP. Both pilots will monitor and crosscheck to ensure that it has been copied correctly and clearly understood. **(T-3)** If the oceanic clearance received is different from the planned clearance, or if the crew receives a reclearance, use the following procedures:

8.4.7.1. Enter the new waypoints into the CNI IAW the NAT HLA/ Minimum Navigation Performance Specifications (MNPS) checklist. **(T-3)**

8.4.7.2. Record the new route on the MFP to include applicable updates to ETP data. **(T-3)**

8.4.7.3. Ensure fuel will be sufficient to arrive at destination waypoint with required reserves. **(T-3)**

8.4.7.4. Mark out the old plotted track and draw the revised plot on the MPC. **(T-3)**

8.4.7.5. In no case should this process simultaneously engage attention of both pilots during flight. **(T-3)**

8.4.8. Compass Deviation Check. Perform a compass deviation check using both INSs and the standby compass prior to oceanic entry. Record the deviation in the appropriate block of the MFP. Apply this correction to headings to be flown whenever it is necessary to use the standby compass as the sole source for navigation.

8.4.9. Strategic Lateral Offset Procedures (SLOP). The C-130J is considered to have automatic offset capability and should apply SLOP IAW airspace requirements.

8.4.10. BIU Backup. For BLK 6.0 aircraft only, ensure that one pilot places their transmission switch to an HF radio so that the crew can transmit on HF in case of BIU Backup. The other pilot should select VHF 2 for the same reason. VHF 1 will be available on the Get Home Control and crew can attempt to relay transmissions to other aircraft on 121.5 until within VHF range of ATC.

8.4.11. When flying in RVSM airspace, hourly altimeter checks are required. **(T-2)**

8.4.12. Overhead Waypoint. In addition to NAT HLA/MNPS procedures, record the actual fuel remaining above the flight-planned continuation fuel and write the difference between continuation fuel and actual fuel remaining in the EXCESS block of the MFP (See [Chapter 11](#) for additional guidance).

8.4.12.1. Record actual in-flight conditions (altitude, wind, and static air temperature (SAT)) above the forecast conditions on the next line of the MFP. Update these conditions as well as fuel flow as needed on the PERF CRUISE and LEGS pages in the CNI-MU.

8.4.12.2. Position Reporting.

8.4.12.2.1. For BLK 6.0 aircraft use FIH standard position report format.

8.4.12.2.2. For BLK 8.1 aircraft use CPDLC. BLK 8.1 Initial Check-In: “Gander, Reach 1234, CPDLC, negative SELCAL, Shanwick next.

8.4.12.2.2.1. All usage of CPDLC should be IAW the Global Operational Datalink (GOLD) Manual. **(T-2)** Area specific information should be referenced within the GOLD and complied with.

8.4.12.2.2.2. Prior to flight, the PIC will ensure accuracy of the REG and CODE of the assigned aircraft within section 18 of the DD Form 1801. **(T-3)** CPDLC log-on does not occur if errors exist.

8.4.12.2.2.3. To ensure ADS-C reporting is enabled, ensure ADS ARM is selected on ATC LOGON/STATUS page L5.

8.4.12.2.2.4. The PF and PM will read each ATC Message individually to ensure message integrity and compliance. **(T-3)** If a follow-on message is required following a clearance (example: REPORT WHEN LEVEL AT FLXXX) it is recommended to leave the REPORT page up as a reminder to the crew, and to ensure compliance when extended periods of time exist prior to executing a report.

8.4.13. Ten Minute Plot. MARK the aircraft position using the offside INS solution and plot the position on the MPC.

8.4.13.1. For BLK 6.0 aircraft, MARK the aircraft position using the offside INS solution and plot the position on the MPC.

8.4.13.2. For BLK 8.1 aircraft, MARK the aircraft position using the CIVIL/FMS solution.

8.4.14. Coast-In. Use the radar to help identify the coast-in position. For BLK 6.0, if coast-in is made at a radial/DME fix, the appropriate radial should be selected on the non-active CDI as a further check that the navigation system is tracking according to the current clearance. Remove SLOP automatic offset, if entered, prior to oceanic exit. For BLK 6.0 aircraft, reset Navigation system (RNAV) and IFF Mode 3 as appropriate.

8.5. Special Certification Airspace Requirements and Procedures.

8.5.1. The CNI-MS installed in the BLK 6.0 navigation suite meets FAA certification requirements for IFR navigation using Aircraft Autonomous Integrity Monitoring (AAIM) as defined in FAA AC 90-108. The MAJCOM has approved the BLK 6.0 GPS with AAIM to be used as the primary means of navigation for enroute instrument navigation using procedures outlined in TO 1-C-130J-1.

8.5.2. The CNI-MS installed on BLK 8.1 aircraft supports worldwide operations in oceanic, enroute, and terminal areas that require RNAV and RNP capabilities when utilizing the CIVIL Airspace mode on the NAV CONTROL 1/3 page. The system can also provide guidance on published RNAV and RNP routes and qualifies as a suitable RNAV system (as defined in FAA AC 90-108) to provide alternate/substitute means of navigation on conventional routes.

8.5.3. NAT HLA formerly known as MNPS Airspace.

8.5.3.1. The BLK 6.0 aircraft is approved for NAT HLA with a 10.3 hour time limit after the INSn/RAD DEGRADED CNI message is received. The C-130J must comply with all NAT HLA equipment requirements when flying within the lateral dimensions of this

airspace. Both INSs must be fully operational to meet the NAT HLA requirement of having two fully serviceable LRNSs (Long Range Navigation System). **(T-0)**

8.5.3.2. The BLK 6.0 navigation system is certified to meet the requirements of RNP-10 airspace for up to 10.3 hours from the time the INSn/RAD DEGRADED CNI message is received.

8.5.3.3. The BLK 6.0 navigation system is approved for RNAV5/BRNAV with no time limits as long as one INS is receiving radio updates.

8.5.3.4. The BLK 8.1 aircraft is approved for NAT HLA with no time limitations.

8.5.4. Flight Plans

8.5.4.1. For flight plan purposes, BLK 6.0 aircraft are PBN approved with RNAV specification RNAV 10, RNAV 5 GNSS, RNAV 5 INS, RNAV 2 GNSS, RNAV 2 DME/DME/IRU, RNAV 1 GNSS, and RNAV 1 DME/DME/IRU. Annotate in appropriate blocks of the DD Form 1801, International Flight Plan, per the GP.

8.5.4.2. For flight plan purposes, BLK 8.1 aircraft are approved for RNAV 10, RNAV 5, RNAV 2, RNAV 1, RNAV APPR, LPV APPR, RNP4, RNP 2, RNP 1, RNP 0.3, and RNP APPR categories. BLK 8.1 is not certified to execute RNP APPR AR (Authorization Required) approaches or utilize RNAV LP lines of minima. Annotate in appropriate blocks of the DD Form 1801, International Flight Plan, per the GP.

8.5.5. RVSM Airspace.

8.5.5.1. Both primary altimeters, at least one autopilot, the altitude advisory system, and the transponder, must be fully operational. The AC will request a new clearance to avoid this airspace should any of this equipment fail.

8.5.5.2. Have the autopilot engaged during level cruise, except when circumstances such as the need to re-trim the aircraft or turbulence require disengagement.

8.5.5.3. Crosscheck altimeters before or immediately upon coast-out. Record readings of both altimeters.

8.5.5.4. Continuously crosscheck the primary altimeters to ensure they agree within ± 200 feet.

8.5.5.5. Limit climb and descent rates to 1,000 feet per minute when operating near other aircraft to reduce potential TCAS advisories.

8.5.5.6. Immediately notify ATC if any of the required equipment fails after entry into RVSM airspace and coordinate a plan of action.

8.5.5.7. Document malfunctions or failures of RVSM required equipment in the AFTO Form 781A.

8.6. Navigation Malfunctions and Failures. Should INAV solutions noticeably separate and exceed the limit for the operating airspace, crews will follow procedures outlined in TO 1C-130J-1. If unable to identify the navigation malfunction, determine and use the INS solution considered most accurate by evaluating both INSs using available radio aids, ground mapping radar, and GPS. Highest validity should be given to positions referenced via radar. Next highest validity should be given to positions derived via radio aid fixing. When left to determine most probable position

(MPP) via navigation solution comparisons, two agreeing INS positions are more valid than two agreeing GPSs. Two agreeing GPSs and one agreeing INS indicate probable INS problem. Consider INS-radar/NAVAID, INS-INS, and INS-GPS position comparisons that are less than 4 NM difference to be valid and in agreement. Once the most accurate INS is determined, select it as the controlling solution. Update ETAs to ATC if required.

8.6.1. Situations may arise when crews cannot identify the faulty navigation system by simple comparison of positions between navigation solutions. Fly the aircraft halfway between the disagreeing INS solutions. Plot both CNI-SP solutions at least once every 30 minutes on MPC, labeling the pilot CNI-SP navigation solution MPP1 and co-pilot's MPP2. Continue to evaluate outputs from each INS and try to use plotted position information to identify adverse trends.

Figure 8.1. Long Range Navigation Checklist (Page 1).

C-130J LONG RANGE NAVIGATION (Oceanic) GUIDE	
<i>Bold items denote NAT HLA Requirements, (*) Items denote C-130J procedures</i>	
FLIGHT PLANNING	
<input type="checkbox"/> Comm/Nav/Surveillance (CNS) Flight Plan Codes and planning documents <input type="checkbox"/> *Flight Plan – verify route of flight <input type="checkbox"/> *Identify coast out, coast in, mid-point & ETP <input type="checkbox"/> *Verify waypoint transition is curved path <input type="checkbox"/> *Insert enroute winds & temps <input type="checkbox"/> *Complete Fuel Plan and ETP calculations <input type="checkbox"/> *Update Permission Config Recovery Fuel <input type="checkbox"/> *Annotate Controlling and Offside INAV SOLNs <input type="checkbox"/> *Annotate "MASTER COPY" at top <input type="checkbox"/> Plotting Chart – plot route coast out to coast in <input type="checkbox"/> Equal Time Point (ETP) – plot <input type="checkbox"/> *Identify last/first suitable & emerg airfields <input type="checkbox"/> *Annotate preparer's name, msn #, date, call sign and PIC signature <input type="checkbox"/> *Annotate "MASTER COPY" at top <input type="checkbox"/> Track msg (Advanced NOTAMS) <input type="checkbox"/> Current copy avail for all crossings <input type="checkbox"/> Note nearest tracks on plotting chart <input type="checkbox"/> Weather Analysis – Note enroute temp / turb, ETP airport forecasts <input type="checkbox"/> Review possible navigation aids for accuracy check prior to coast out <input type="checkbox"/> *Block 6.0 - DD1801, Item 10: SDFGHIRTUWXYZ/H <input type="checkbox"/> *Block 8.1 - DD1801, Item 10: SBDE2E3FGHIJ4J5M 1RTUWXYZ/LB1 <input type="checkbox"/> *Block 6.0 - Item 18: PBN/A1B2B5C2C4D2D4, NAV/RNVD1E2A1, OPR/DOD, and PER/C <input type="checkbox"/> *Block 8.1 - Item 18: SUR/D1,PBN/A1B1C1D1L1O1S2, NAV/SBAS, and OPR/DOD	<input type="checkbox"/> *Resolve discrepancies <input type="checkbox"/> *Annotate waypoint with "✓" <input type="checkbox"/> Using the MFP, the Other Pilot Will <input type="checkbox"/> Check expanded coordinates of waypoints <input type="checkbox"/> Track & distance chk ($\pm 2^\circ$ and ± 2 NM) <input type="checkbox"/> *Annotate waypoint with "O" around "✓" <input type="checkbox"/> Input winds (*input winds on LEGS pgs) <input type="checkbox"/> *Input applicable LEGS constraints <input type="checkbox"/> *Verify PERF fuel & GW <input type="checkbox"/> *Enter MFP Recovery Fuel as FIXED fuel <input type="checkbox"/> *6.0 - Program ETP on PROGRESS 3/4 page <input type="checkbox"/> *Crosscheck CNI computed ETP vs MPC plotted ETP (set PERF CRZ ALT to fld elev for accuracy – reset planned CRZ ALT) <input type="checkbox"/> *Program Divert fields <ul style="list-style-type: none"> Block 6.0 - PROGRESS 4/4 page Block 8.1 – ALTN DESTS <input type="checkbox"/> Groundspeed check (GS >0 may indicate INS malf) <input type="checkbox"/> *Obtain departure clearance <input type="checkbox"/> *Update CNI re-verify entries as required <input type="checkbox"/> Altimeter checks ($\pm 75'$ from field elevation) <input type="checkbox"/> HF check – on ground if possible <input type="checkbox"/> Master CFP (symbols: ✓, O, I, J) (*annotated as req'd) <input type="checkbox"/> *Crew Briefing - completed <input type="checkbox"/> *Before Starting Engines Chklist - Setup RNAV
PREFLIGHT	
<input type="checkbox"/> Wind shear or turbulence forecast – checked <input type="checkbox"/> Computer Flight Plan (CFP) vs ICAO Flight Plan (check routing, fuel load, times, groundspeeds) <input type="checkbox"/> AF Form 781 – check for communication, navigation, surveillance or RVSM issues <input type="checkbox"/> RVSM – *verify Req'd equip: CADC1&2, CNI-SP1&2, P/CP PFD, 1 autopilot, altitude alert sys, & IFF <input type="checkbox"/> *Power Up checklist and Cockpit Set-up <input type="checkbox"/> Dual INS for oceanic ops - aligned <input type="checkbox"/> *Note time when INS enters "NAV" mode (basis for INS-only RNAV time limits) <input type="checkbox"/> Confirm Present Position coords (ref published ramp coords or determine via airfield diagram) <input type="checkbox"/> *Record parking coordinates on MFP <input type="checkbox"/> Master Clock for all ETAs/ATAs – Identify & check <input type="checkbox"/> CNIMU programming & Independent Verification <input type="checkbox"/> Check NavDB currency and software version <input type="checkbox"/> Using the MFP, One Pilot Will <input type="checkbox"/> Load the route of flight <input type="checkbox"/> Track & distance chk ($\pm 2^\circ$ and ± 2 NM) <input type="checkbox"/> *Verify total route distance (± 25 NM)	<input type="checkbox"/> TAXI AND PRIOR TO TAKE-OFF <input type="checkbox"/> Groundspeed check (check for reasonable GS) <input type="checkbox"/> Present Position check (after blocking out, check for gross diff btwn current pos and last pos check) <input type="checkbox"/> *Altimeter checks $\pm 40'$ from known checkpoint (per TO) <input type="checkbox"/> CLIMB OUT <input type="checkbox"/> Transition altitude – briefed, set 29.92" (1013 hPa) <input type="checkbox"/> Manually compute *RETAs (above sterile altitude and time permitting) <input type="checkbox"/> *LEVEL OFF <input type="checkbox"/> *Fuel Management / X-Feed as required <input type="checkbox"/> *Update CNI PERF data (Alt, Speed, Temp, Winds), LEGS waypoint wind constraints (as necessary) <input type="checkbox"/> PRIOR TO OCEANIC ENTRY <input type="checkbox"/> HF check, if not done during pre-flight <input type="checkbox"/> *Block 6.0 Navigation Accuracy check <ul style="list-style-type: none"> *Select CNI-MU NAV CTRL, UPDATE *Enter NAVAID checkpoint as REF POS (PB or LL) *Select FREEZE when overhead checkpoint (do not select ACCEPT) *Cross-check INAV1, INAV2 and the REF POS (Compare EGI 1 and EGI 2 delta position offsets) *If both INAV position offsets are ≤ 5nm – continue *If > 5nm, refer to AFMAN 11-2C-130JV3 ch 8 for guidance. (MNPS states IFA not advisable)

Figure 8.2. Long Range Navigation Checklist (Page 2).

<ul style="list-style-type: none"> <input type="checkbox"/> Record time, position *and deltas on MFP <input type="checkbox"/> *Verify controlling INAV Soln set to EGI or GPS, Offside INAV Soln set to INS/RAD <input type="checkbox"/> Obtain oceanic clnc from appropriate clnc delivery (≤40 mins prior to entry) <ul style="list-style-type: none"> • State requested flight level on init clr req <input type="checkbox"/> Confirm Flight Level at oceanic boundary <input type="checkbox"/> Confirm Flight Level, Mach and Route for crossing <input type="checkbox"/> Ensure aircraft performance capabilities for maintaining assigned altitude/assigned Mach <input type="checkbox"/> Advise ATC When Able Higher (WAH) (*if req'd) • Re-clearance – If different from route filed - Both pilots receive and confirm <ul style="list-style-type: none"> <input type="checkbox"/> Update CNI, CFP & plotting chart <input type="checkbox"/> Check track & distance for new route (Ref AMC Course & Distance Tables) <input type="checkbox"/> *Update CNI PERF data (Alt, Speed, Temp, Winds), LEGS waypoint wind constraints (as necessary) <input type="checkbox"/> *Check CNI inflight ETP <input type="checkbox"/> Altimeter checks (w/in ±200' of 2 primary altimeters)- record readings <input type="checkbox"/> Compass deviation check – record (*3 hrs/30") <ul style="list-style-type: none"> • *Record Mag Compass hdg & INS1&2 HDG from CNI-MU INS STATUS pages • *Compute DEV using Offside INS: (Offside INS ± DEV = Mag Hdg) <input type="checkbox"/> *Set POS ALERT1/ALERT2 to ≤ 5.0/10.0 NM <input type="checkbox"/> *Clear MARK LIST <input type="checkbox"/> Enter at Oceanic clearance altitude (may require coordination if different than last ATC-assigned) <p><u>AFTER OCEANIC ENTRY</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Maintain assigned Mach (if applicable) <input type="checkbox"/> VHF radios-set to interplane and guard frequency <ul style="list-style-type: none"> • *Set/monitor VHF1 to 123.45 MHz (oceanic interplane) and VHF2 to 121.5 MHz (guard) • *Set UHF2 to 243.0 MHz (guard) • *PM select HF1 or 2 (as appropriate), PF selects VHF2 (provides for BIU BU situation) <input type="checkbox"/> Strategic Lateral Offset Procedures (SLOP) <ul style="list-style-type: none"> • 1 or 2 nm right *(INDEX, ROUTE, ACT RTE 1/3) <input type="checkbox"/> 30 min after entry - Squawk 2000 (or last assigned per airspace requirements) <input type="checkbox"/> Hourly altimeter checks (record primary & standby) <p><u>APPROACHING WAYPOINTS</u></p> <ul style="list-style-type: none"> • A few minutes prior, crosscheck upcoming waypoint and next waypoint <ul style="list-style-type: none"> <input type="checkbox"/> Compare lat/long w/CFP (consider SLOP) <input type="checkbox"/> *Check Track & distance chk (±2° and ±2 NM) <input type="checkbox"/> *Update ETAs to next 2 waypoints (RETAs) <p><u>OVERHEAD WAYPOINTS</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Confirm aircraft transitions to next waypoint <ul style="list-style-type: none"> <input type="checkbox"/> Check track and distance against Master CFP <input type="checkbox"/> Confirm time to next waypoint <ul style="list-style-type: none"> <input type="checkbox"/> Notify ATC if ETA changed by 3-min or more (5 min or more w/in ADIZ off-airways) <input type="checkbox"/> *Complete MFP entries 	<ul style="list-style-type: none"> <input type="checkbox"/> *Record Controlling INAV DELTA bearing/range (NAV CTRL 1/3 page) <ul style="list-style-type: none"> • *Delta >5 NM (ACAWS advisory); determine most accurate INS • *Delta >10 NM (ACAWS caution); notify ATC, refer to Loss of RNAV Capability (-1 Ch 3) <input type="checkbox"/> *Record ATA, compute ahd/bhd time (PROG 1/4) <input type="checkbox"/> *Record ACTUAL fuel (lower of PERF INIT or Totalizer), compute EXCESS (PROG 1/4) <input type="checkbox"/> *Record IN FLT WX (alt, winds, SAT) (PROG 2/4) <input type="checkbox"/> *HF oceanic Position Report IAW FIH <ul style="list-style-type: none"> • Callsign, Pos(LL), Time, FL, Estimating Pos (LL) & time, Pos (LL) Next (INDX-PROGRESS 1/4) <input type="checkbox"/> *Annotate waypoint with "I" over circled checkmark <input type="checkbox"/> *Update CNI PERF data (Alt, Speed, Temp Dev, Wind constraints) as necessary <p><u>10-MIN PLOT</u></p> <ul style="list-style-type: none"> • Approx 10 mins after waypoint (~2° Longitude) <input type="checkbox"/> *MPC position plot (plot offside INAV SOLN position). <ul style="list-style-type: none"> • *Center the heading bug, select HDG mode • *Select offside INAV SOLN (AMU, NAV SELECT) • *Select MARK • *Re-select controlling INAV SOLN • *Re-engage NAV mode • *Offside INAV SOLN position is on MARK LIST pg <input type="checkbox"/> Record time and latitude/longitude on plotting chart – non steering LRNS (*Offside INAV SOLN) <ul style="list-style-type: none"> • *If >2 NM off course; check AFCS/Fit Director setup, CNI fit plan, MARKed data, & position plot (consider SLOP) <input type="checkbox"/> *Annotate waypoint with "I" over circled checkmark <p><u>MIDPOINT</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Midway btwn waypts compare winds from CFP, *CNI (INDX PROG 2/4), & upper millibar wind charts <input type="checkbox"/> Confirm time to next waypoint <ul style="list-style-type: none"> • Notify ATC if changed by 3-min or more <p><u>*Equal Time Point</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> *Review fuel status <input type="checkbox"/> *Update CNI-MU PROGRESS-DIVR & FROM/TO pg <p><u>COAST IN</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Confirm routing after oceanic exit <input type="checkbox"/> Remove SLOP prior to oceanic exit point *(INDX/ROUTE/ACT RTE 1/3) <input type="checkbox"/> *Verify offside INAV CTRL SOLN set to INS/RAD (NAV CTRL 1/3) – as req'd for airspace <input type="checkbox"/> *Reset POS ALERT1/ALERT2 as req'd for airspace <input type="checkbox"/> Navigation Accuracy Check (compare to NAVAID) <p><u>DESCENT</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Transition level - set altimeters to QNH <p><u>DESTINATION/BLOCK IN</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Navigation Accuracy Check <input type="checkbox"/> RVSM write-ups
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Figure 8.3. Long Range Navigation Checklist (Page 3).

<p><u>*Other Considerations</u></p> <ul style="list-style-type: none">• In-Flight Contingencies (ref GP Chapter 6)• Weather Deviation Procedure (GP Ch 6)• Weather – Destination/Alternate(s) Airport(s)• INS only ops (ref J Vol 3) Use compass dev calcs

Chapter 9

AIRCREW MAINTENANCE SUPPORT PROCEDURES

9.1. General. This chapter contains aircrew procedures not contained in the flight manual or other publications.

9.2. Responsibilities. Aircrew may assist the normal maintenance function when critical contingency taskings dictate their use, provided this action does not impact crew duty and crew rest limits specified in AFMAN 11-202V3 and applicable supplements.

9.3. Authority to Clear a Red X/Sign an Exceptional Release. IAW AFI 21-101 and TO 00-20-1.

9.4. Aircraft Servicing. Aircrews are authorized to perform those aircrew maintenance support tasks found in this volume. The aircrew performs these tasks only in the absence of qualified maintenance personnel and is designed for support of the aircraft and its mission while away from home station. Without exception, the applicable checklists will be used during all refueling and de-fueling operations.

9.4.1. Crew members acting as refueling supervisors and panel operators refer to TO 00-25-172, *Ground Servicing Aircrew* and refueling job guide. Aircrews should only refuel in cases when maintenance support is not readily available and the mission would be delayed. Aircrew may also conduct ground refueling at home station to satisfy training requirements. Crew members may augment maintenance refueling teams at enroute stops.

9.4.2. Concurrent Ground Operations. The PIC and chief servicing supervisor (CSS) shall ensure aircrew members and servicing personnel accomplish concurrent servicing (CS) in accordance with TO 00-25-172 and servicing technical orders. Aircrews performing Dash-1 preflight inspections or cargo loading concurrent with servicing must have cooperation and close coordination with the CSS. The CSS will remain in continuous intercom contact with fuel servicing team members during the entire servicing operation. When the aircrew is at the aircraft, the PIC is responsible for all aspects of aircraft operations and shall inform the CSS how aircrew members will participate in passenger evacuation/safety. In keeping with the guidelines in TO 00-25-172, CSS has authority over all phases of CS operations to include personnel participating in the refuel. **(T-3)**

9.4.2.1. Use the following guidelines when CS operations are conducted with passengers on board:

9.4.2.1.1. A current and qualified crew member will be designated the passenger compartment monitor (PCM) and shall continuously monitor passengers during CS. PCMs will not perform other duties during servicing. **(T-3)**

9.4.2.1.2. The AC shall designate a current and qualified crew member to remain on the flight deck to monitor interphone and be prepared to broadcast a request for emergency assistance on a radio tuned to the appropriate agency with ready access to an emergency response team. The PA may be used to direct passenger evacuation in an emergency. **(T-3)**

9.4.2.1.3. The PCM shall brief passengers on emergency egress, exits, prohibitions, and hazards. Passengers will remain seated but will not wear seat belts during CS.

Passengers shall turn off all portable electronic devices, except medically required devices, prior to servicing. (T-3)

9.4.2.1.4. When authorized by the PIC, passengers may board or exit the aircraft when loading for departure or offloading upon arrival. Boarding or exiting must be opposite of servicing operations. (T-2) Once onboard, except for emergencies, passengers shall not deplane once servicing commences. (T-2)

9.4.2.1.5. Passengers are not required to ground themselves.

9.4.2.1.6. Passenger representatives will assist the PCM when passengers board and exit. Passengers must remain outside the vapor hazard area, the fuel servicing safety zone, oxygen servicing area, and 25 feet from fuel vents during servicing. (T-3)

9.4.2.1.7. The AC, or designated aircrew representative, or CSS will advise PCMs when to evacuate passengers. (T-3)

9.4.2.1.8. Unless environmental conditions dictate, the crew entrance door and left paratroop door should remain open and the right paratroop door should remain closed and locked during concurrent servicing. The PCM may lower, but not lock, the left paratroop door during inclement weather. (T-3)

9.4.2.1.9. The PCM shall set the interior lighting as bright as possible to suit the combat environment. (T-3)

9.4.2.1.10. The loadmaster shall ensure cargo loading or unloading does not jeopardize passenger safety. (T-2) Winching is prohibited. Do not load/unload cargo containing explosives, oxygen, flammable gases or liquids during CS.

9.4.2.2. Simultaneous fuel and oxygen servicing is not authorized IAW 00-25-172.

9.4.2.3. Winching of rolling stock and non-spark-producing (e.g. wooden) pallets is authorized. Driving vehicles equipped with spark arresters is authorized during fuel servicing. When loading vehicles without spark arresters, the vehicles must be either completely inside the cargo compartment, or outside of the established fuel servicing safety zone, before fuel servicing lines can be pressurized. **Exception:** Diesel and turbo-charged (without waste gates) gasoline-powered vehicles can be onloaded or offloaded without having to stop fuel flow.

9.4.3. Special Fueling Operations (SFO). SFO events are defined in AFI 11-235. SFO (e.g. Hot Refueling, Wet Wing Defueling, ABFDS etc.) will only be conducted by aircrew that have been authorized and trained IAW MAJCOM SFO guidance. (T-2)

9.5. Aircraft Recovery Away from Main Operating Base (MOB). The PIC is responsible for ensuring the aircraft is turned to meet subsequent mission taskings, even when qualified maintenance specialists are unavailable. (T-2)

9.5.1. The PIC is responsible for the recovery items including:

9.5.1.1. Parking and receiving. (T-2)

9.5.1.2. Aircraft servicing, including Aircraft Ground Equipment (AGE) usage. (T-2)

9.5.1.3. Supervision of minor maintenance within local capability. (T-2)

9.5.1.4. Minor configuration changes to meet mission tasking. (T-2)

9.5.1.5. Securing the aircraft before entering crew rest. (T-2)

9.5.1.6. Coordinating aircraft security requirements. (T-2)

9.5.1.7. Documenting AFTO 781-series forms. (T-2)

9.5.2. In all cases where aircrews must service the aircraft without qualified maintenance specialist assistance, comply with the appropriate maintenance TO.

9.5.3. Aircrews are not qualified to accomplish the required ground inspections. In those instances where maintenance personnel are not available, the aircrew will enter a red dash symbol in the AFTO Form 781H, *Aerospace Vehicle Flight Status and Maintenance Document*, updating current status and enter a red dash symbol and a discrepancy that reflects that the applicable maintenance inspection (e.g. preflight, thru-flight, basic post-flight) is overdue. (T-1)

9.6. Aircrew and Maintenance Engine Runs.

9.6.1. A mixture of aircrew and maintenance personnel will not normally accomplish engine runs. When an aircrew member is required to start or run up engines for maintenance purposes, the following procedures apply:

9.6.1.1. Maintenance personnel will accomplish all necessary inspections and preparations for the engine run. These actions include but are not limited to: intake/exhaust inspections, access panel security servicing, and AFTO Form 781 documentation. (T-3)

9.6.1.2. Use the pilot and loadmaster checklists. Begin with the POWER UP checklist, and complete all appropriate checklists through the BEFORE LEAVING AIRPLANE checklist. (T-3)

9.6.1.3. Only deviate from the flight crew checklist when maintenance requires less than four engines to be started. (T-3)

9.6.1.4. Operate symmetrical engines when power settings above ground idle are required. (T-3)

9.7. Towing Operations. Aircrew members normally will not participate in towing operations. If required to occupy cockpit positions during towing operations conducted by personnel not familiar with C-130 towing procedures, the PIC will coordinate with the tow team supervisor to brief all personnel on their duties and associated hazards. Aircrews and tow team members will comply with TO 1C-130J-2-09JG-10-1, *Ground Handling* and all applicable guidance. Under no circumstances will any aircrew member act as the towing supervisor.

9.7.1. Pushback Procedures. At locations where reverse taxiing from parking is not an option due to the potential for propeller wash damage, aerodrome restrictions, etc., the use of pushback procedures with qualified ground personnel is appropriate. These procedures allow aircrew to occupy crew stations with the APU operating (for electrical power and auxiliary hydraulic pressure for emergency braking) during pushback/tow to a startup location and then immediately start engines for continued operations.

9.7.1.1. Perform the Before Starting Engines checklist, but prior to checklist completion, accomplish the following additional items prior to pushback:

- 9.7.1.1.1. Brief all parties on hand signals to be use.
- 9.7.1.1.2. Release the parking brake prior to starting pushback.
- 9.7.1.1.3. Keep the crew entrance door close during pushback/tow.
- 9.7.1.2. Upon completion of pushback/tow, ensure the parking brake is set prior to ground personnel disconnecting the tow bar and complete Before Starting Engines checklist.

Chapter 10

CARGO AND PASSENGER HANDLING PROCEDURES

10.1. General. Reference AFMAN 11-202V3, applicable supplements, and this chapter for all cargo and passenger handling procedures. The loadmaster coordinates and supervises loading and offloading with air terminal operations or shipping agencies. Loadmasters also perform preflight and post-flight inspections of aircraft systems, plan loads, and compute aircraft weight and balance. In addition, loadmasters provide for the safety and security of passengers, troops, cargo, mail, and baggage during flight. During airdrop operations, the loadmaster prepares and rigs equipment, and participates in the aerial delivery of equipment, supplies, and personnel. To ensure effective CRM/TEM, the primary loadmaster will assume overall responsibility for completion of all checklists and ensure no confusion exists about what duties have been or need to be accomplished when multiple loadmasters are on the crew.

10.2. Responsibilities of Aircraft Loading.

10.2.1. AMC-Designated Stations.

10.2.1.1. Aerial port personnel are responsible for selecting cargo and mail for airlift, promptly completing documentation, palletizing cargo, load planning, computing load distribution, and moving cargo to and from the aircraft to meet scheduled departure. They will advise the loadmaster of destination, size, weight, and type of cargo (classified, hazardous, etc.) before starting loading operations to permit proper positioning. **(T-3)** They will also coordinate traffic activities affecting loading and offloading and assign sufficient aerial port loading personnel for cargo handling. **(T-3)** Aerial port personnel are responsible for safe positioning of material handling equipment (MHE) and cargo to or from the aircraft cargo door, ramp, or auxiliary ground loading ramps. Under supervision of the loadmaster, aerial port personnel may assist with the following: preparing the aircraft for loading, stowing loading/tiedown equipment if the aircraft is not to be reloaded, physically loading the aircraft and tying down cargo and equipment, as well as releasing cargo that is tied down and physically offloading it.

10.2.1.2. The loadmaster is responsible for aircraft preflight, load planning, certifying load plans, operating aircraft equipment, supervising and directing loading and offloading operations, and cargo tie down. Loadmasters are also responsible for entering weight and balance data into the CNI-MU Weight and Balance pages, and completing weight and balance documentation IAW AFMAN 11-2C-130J Addenda A, *C-130J Operations Configuration/Mission Planning*. Loadmasters may accomplish weight and balance documentation IAW Air Mobility Command Director of Operations (AMC/A3)-approved All Electronic (paperless) Form F guidance. The loadmaster coordinates with the load team chief to verify cargo against manifests, supervises and directs loading operations, and is responsible for safe movement of cargo into and out of the aircraft. The loadmaster will notify the PIC, command post, or terminal operations officer if loading personnel are injured or cargo, aircraft equipment, or aircraft structure is damaged during loading or offloading. **(T-3)** The loadmaster will brief the PIC on any hazardous cargo and cargo jettisonability prior to engine start. **(T-3)**

10.2.1.3. Loads planned by qualified load planners will be accepted by the aircraft loadmaster and loaded aboard the aircraft as planned, unless the load or any portion of it will compromise flight safety or does not comply with applicable aircraft technical orders or USAF and MAJCOM publications. **(T-3)** If cargo is refused for these reasons, forward all applicable information, including a copy of the load plan, to MAJCOM Stan/Eval. AMC personnel attach an AMC Form 54, *Aircraft Commander's Report on Services/Facilities*. **(T-3) Exception:** The aircraft loadmaster may deviate from load plans to facilitate ease of onload or offload of cargo and to alleviate unnecessary aircraft reconfiguration without submitting documentation. The aircraft loadmaster must take into consideration the next station's cargo configuration requirements and will ensure the aircraft is in proper weight and balance limits. **(T-3)** A new load plan is not required if cargo is not refused.

10.2.1.4. The loadmaster is the on-scene expert for load planning and accepting cargo for airlift. Some loads are not specifically detailed in applicable directives and require the loadmaster to use his/her best judgment, based on training, experience, and knowledge, to determine the best and safest method of loading the cargo. When difficulties arise, they should seek advice of other personnel (e.g. available loadmasters and squadron, group, wing, NAF, or MAJCOM Stan/Eval personnel).

10.3. Emergency Exits and Safety Aisles. In addition to AFMAN 11-202V3 and applicable supplements, reference AFMAN 11-2C-130JV3, Addenda A.

10.3.1. When passengers are seated in side facing seats, the loadmaster will ensure there is sufficient space between the cargo and the seats to permit passenger leg room. **(T-3)**

10.3.2. Passengers/ambulatory patients may not be seated closer than 30 inches in front of palletized netted cargo or cargo secured with straps. **(T-3)** When the cargo, either palletized or non-palletized, is secured with chains, the 30-inch spacing is not required. **Exception:** Maintain 30-inch spacing on AE missions, when carrying occupied litters. **(T-3)**

10.4. Pre-mission Duties.

10.4.1. Cargo Missions.

10.4.1.1. Loadmasters in coordination with aerial port personnel establish loading times. Loading times that differ from the normal pre-departure sequence will be established, with PIC coordination, before the loadmaster enters crew rest. **(T-3)** Loading time is governed by the type of load and complexity of loading procedures (bulk, palletized, etc.) -- not by port saturation or management of aerial port workload levels. When reporting for duty, the loadmaster checks in with the air terminal operation center (ATOC) or other designated location to obtain load breakdown and assist in load planning as required.

10.4.1.2. Fleet Service Checklist.

10.4.1.2.1. Loadmasters will make every effort to ensure that the AMC Form 4128, *Fleet Service Checklist*, is signed by the fleet service representative and placed aboard the aircraft prior to departure if this service is provided.

10.4.1.3. Known tiedown equipment deficiencies.

10.4.1.3.1. Davis 08/08 CGU-3/E 25K tiedown device. Prior to use, ensure tiedown devices with manufacture date of "08/08" have a repair kit installed. **(T-2)** Repair kits

consist of a keeper plate on top side of release handle attached with three Philips head screws.

10.4.1.3.1.1. Upgrade kits are needed to correct the locking interface operation for these devices. **(T-2)** Any devices that have not been repaired with these kits are not authorized for use. **(T-2)** If found, remove the device from service.

10.4.1.3.1.2. The following information can be located on the release handle of the affected devices: NSN 1670-00-212-1150, manufactured by Davis Aircraft Products Incorporated under contract SPM4A7-08-D-0160, with a manufacture date of 08/08.

10.4.2. Passenger Missions.

10.4.2.1. All passenger briefing(s) contained in Flight Manual(s)/checklist(s) will be accomplished for any mission with passengers aboard regardless of passenger category (e.g. DV, Duty passenger, Space Required passenger, Space available passenger, MEP, etc.) or manifest documenting method (passenger manifest, flight orders, etc.). **(T-2)**

10.4.2.2. The design of the sidewall seatbelt makes it difficult to remove enough slack to secure the ICS. Crewmembers may need to reroute the seatbelt by crossing the belt, between the sidewall and the seatback webbing, routing the belt back through the webbing and through the securing point on the ICS. When removing slack from the seatbelt ensure the buckle remains on one side or the other so that it can be easily accessed for release. The PIC is the final authority for determining whether the ICS is adequately secured.

10.5. Enroute and Postflight Duties.

10.5.1. At stations where a crew change is made and loading or offloading is required, the inbound loadmaster is responsible for offloading the aircraft. The outbound loadmaster is responsible for planning and loading the outbound load. When no crew change occurs, the inbound loadmaster is responsible for onloading or offloading cargo.

10.6. Weight and Balance. Accomplish weight and balance for this aircraft according to TO 1B-50, *Weight and Balance*, TO 1C-130(C)J-5-1/TO 1C-130J-5-1, *Sample Basic Weight Checklist*, TO 1C-130(C)J-5-2/TO 1C-130J-5-2, *Loading Data Manual* and AFMAN 11-2C-130JV3, Addenda A. The unit possessing the aircraft maintains the primary weight and balance handbook containing the current aircraft status and provides a supplemental weight and balance handbook for each aircraft. Enclose the supplemental handbook in a wear-resistant binder (preferably metal), stenciled "Weight and Balance" with the airplane model and complete serial number on the cover or spine. **(T-3)**

10.6.1. The supplemental handbook will include the Chart C, which includes the aircraft's basic weight, basic moment, and center of gravity. **(T-3)**

10.6.2. The loadmaster will complete the weight and balance IAW AFMAN 11-2C-130JV3 Addenda A. **(T-3)**

10.6.3. Loadmasters in units who authorize the use of Standardized Loading DD Form 364-5, Forms F will still ensure all weight and balance data is correct in the CNI-MU. **(T-3)**

10.7. Senior Leader In-transit Conference Capsule (SLICC).

10.7.1. C-130J specific loading and aircraft preparation requirements for the SLICC are listed on the ATTLA Internal Air Transport Certification memo.

10.7.2. Only qualified SLICC maintenance personnel will install/remove the SLICC vestibule and connect/disconnect SLICC electrical power. **(T-2)**

10.7.3. ADS palletized seats or other cargo will not be loaded immediately forward of the SLICC. **(T-2)** Maintain a clear forward exit path from the Conference Capsule's forward exit door. **(T-2)**

10.7.4. The SLICC is powered by the cargo winch AC electrical system. The aircraft must have an operational cargo winch AC electrical system and a minimum of two (2) spare fuses. A C-130J Crew Chief will accompany the mission to replace fuses if necessary. **(T-2)** However, C-130 Crew Chiefs are not qualified, trained or authorized to perform maintenance on the SLICC.

10.7.5. All seats in the conference capsule may be occupied during takeoff or landing. If passenger restraint is required during turbulence, only 5 passengers are permitted in the conference capsule due to availability of seat belts. **(T-2)** The berthing capsule shall not be occupied during critical phases of flight. **(T-2)** Carry-on items must be properly secured for during critical phases of flight. **(T-2)**

10.7.6. Each seat will be equipped with an EPOS and a life vest (when required for overwater flights). **(T-2)** Loadmaster will brief passengers on location and use of emergency equipment. **(T-2)**

10.7.7. SLICC conference, berthing module, and Viper power can be shut off immediately in the event of an emergency by pressing the red emergency shutdown switch on either the external power distribution panel or internal operator control panel of each module (Viper is powered from the conference capsule). Aircrews will familiarize themselves with the location of these emergency shutdown switches prior to transporting passengers in the SLICC modules. **(T-2)**

10.7.8. An emergency key located in a pouch by each entry door is available for use by aircrew in the event that an emergency situation would require immediate access to a locked module.

10.8. Viper Communication System.

10.8.1. The AMC Viper Systems are transit-cased Roll-on Communications Platforms that provide INMARSAT High Speed Data and voice capabilities, as well as, ground based operations. The equipment can be secured to the cargo floor or palletized. A hatch mount INMARSAT antenna, is used for communications and is connected to the INS to maintain orientation. Max power draw of the Viper is 7.7 amps. **NOTE:** When the Hatch Mounted International Marine/Maritime Satellite Antenna (HMIA) and Ku band Spread Spectrum (KuSS) radome is requested/required, an approved TO 00 25 107 Technical Advisory Request (TAR) is required. After mission termination, the following must be put in the 781A, "INFO NOTE: Cumulative HMIA or KuSS flight time for MSN# XXX is X.X hrs, TAR# XXX."

10.8.2. Viper SATCOM personnel are required to install/route the required equipment after the on-load and will accompany the mission as a crew member(s). **(T-2)** A hatch must be

available for the installation of the hatch mount INMARSAT antenna. The INMARSAT antennae can only be installed in the Flight Deck Overhead Escape Hatch location. (T-2)

10.8.3. Coordination between the aircrew and Viper operator is required to ensure SLICC/Viper systems are powered down prior to changing generators/power sources. (T-2)

10.9. Emergency Airlift of Personnel. Refer to procedures in [Chapter 13](#).

Chapter 11

FUEL PLANNING AND CONSERVATION

11.1. General. This chapter is designed to assist planners and pilots in fuel planning airland and airdrop missions, with or without low-level segments. A fuel plan is required for all flights except local area training flights with established standard fuel loads. The Joint Mission Planning Software (JMPS) and TOs 1C-130J-1-1 and 1C-130(C)J-1-1 Performance Manuals are the primary preflight references. All preflight planning must be verified with aircraft mission computer (MC) performance prior to departure. Missions should be planned at altitudes, routes, and airspeeds to minimize fuel usage.

11.2. Fuel Conservation. Fuel conservation procedures will be IAW AFMAN 11-202V3 and applicable supplements, and AMCPAM 11-3, *Birds Fly Free, AMC Doesn't*.

11.3. Fuel Planning Procedures. Aircrew should employ the following fuel optimization measures without compromising flight safety or jeopardizing mission/training accomplishment:

11.3.1. Plan fuel to an alternate only when AFMAN 11-202V3 and applicable supplements or **Chapter 5** of this AFMAN require the filing of an alternate.

11.3.1.1. When only one alternate is required, use the closest suitable airfield meeting mission requirements (such as special requirements for hazmat or patients) and AFMAN 11-202V3 weather criteria.

11.3.1.2. If two alternates are required, use the two closest suitable airfields meeting AFMAN 11- 202V3 weather criteria and fuel plan to the more distant of the two.

11.3.1.3. When selecting an alternate, suitable military airfields are preferred if within 75 nautical miles of destination.

11.3.2. Using all available planning tools (including MAFPS) and guidance in this chapter, PICs will determine the Required Ramp Fuel Load (RRFL). When actual fuel load exceeds the RRFL by more than 2,200 lbs consideration should be given to defuel the aircraft to the RRFL.

11.3.3. Minimum landing fuel is 3,000 lbs. This fuel accounts for gauge errors. Do not include this 3,000 lbs of fuel in the 45-minute fuel reserve and 15-minute contingency fuel calculations.

11.3.4. Routes will be planned at 320 KTAS (260 KTAS below 10,000 MSL), except for oceanic crossings. For oceanic crossings, routes will be planned at 300 KTAS or 290 KTAS, optimized for gross weight.

11.4. Fuel Requirements and Definitions. The following definitions apply to fuel planning, and take precedence over similar definitions published elsewhere. Refer to **Table 11.1** for definitions of C-130J fuel load components. This section augments AFMAN 11-202V3 fuel requirements.

11.4.1. Required Ramp Fuel Load (RRFL): Minimum fuel required at engine start to complete tasked mission.

11.4.2. Contingency Fuel: An identified extra to compensate for unforeseen circumstances during any phase of flight (e.g. unforecasted weather, launch delay, etc.)

11.4.3. Wing Relieving Fuel: Additional fuel kept in the main tanks intended to counter wing bending moments and keep the aircraft within flight manual weight limitations.

11.4.3.1. Calculate Wing Relieving Fuel using the flight manual weight limitations chart for the aircraft's planned cargo load. This is only required when aircraft zero fuel weight exceeds 130,000 lbs. Enter the chart with the aircraft empty weight and cargo weight, then read across to determine the fuel required to remain within limits. Add enough Wing Relieving Fuel, if required, to ensure that Recovery Fuel does not fall below the fuel required to remain within limits. **(T-3)**

11.4.3.2. All local and JA/ATT missions flying low-level should initially takeoff with main tanks full to reduce the effects of wing upbending and increase the center wingbox service life. **(T-3)** Decreased takeoff fuel in the main tanks can decrease the center wingbox service life as much as 47 percent.

11.4.4. Weather Avoidance Fuel: Additional fuel required for avoidance of known or forecast thunderstorms or icing conditions. When weather conditions dictate, add the following fuel corrections:

11.4.4.1. 1,500 lbs if forecast thunderstorms are scattered or numerous along the route of flight. **(T-3)**

11.4.4.2. 1,000 lbs if the route of flight has known or forecast icing conditions. **(T-3)**

11.5. Fuel Planning Profiles. Enroute cruise airspeed normally should be planned at a constant TAS IAW the performance manual. Missions planned using Long Range Cruise (LRC) provide little flexibility in the air when faced with actual fuel critical situations requiring the conservation of additional fuel. Divert profiles should be fully fuel planned and represent what will actually be flown. Altitudes should be no higher than the ATC cruise ceiling per the performance manual.

11.5.1. JMPS CFP Planning Profile.

11.5.1.1. The C-130J performance module of JMPS is certified to calculate accurate fuel planning information. Crews should use the C130JHI.frm form when printing the CFP so both the route of flight and fuel planning information can be recorded. Use the fuel planning blocks on the top of the flight plan and **Table 11.1** for fuel planning. **(T-3)** Enroute and Minimum Landing Fuel will be automatically printed. Pilots will ensure an accurate Recovery Fuel is input on the JMPS Pre-mission/Configuration/Fuel screen so calculated Continuation Fuels used during in-flight fuel monitoring are valid. **(T-3)**

11.5.1.2. When alternates are required, pilots may need to accomplish and print two iterations of the flight plan to incorporate an accurate Recovery Fuel. For example: After the first calculation, pilots will extract the enroute fuel to the alternate from the last line of the flight plan and add this to the initial Recovery Fuel. A second flight plan will be calculated once the Pre-mission/Configuration/Fuel screen is updated with the correct Recovery Fuel. If an alternate is required, use the Turnpoint/Additional Points screen to insert the designated airfield as a DVT (divert) type after the intended landing airfield. **(T-3)**

11.5.2. Aircrew will receive an MAFPS when on an FM mission from C2. **(T-3)** MAFPS will produce a .jrt file. The flight plan .jrt file can be opened in JMPS, and an accurate fuel plan can be obtained. This will also allow the C130JHI form to be printed if desired, and a

mission card can be cut from this flight plan. The JMPS flight plan may be easier for aircrews to log required entries when in Remote Continental airspace.

11.5.3. Manual USAF Form 70, *Pilot's Flight Plan and Flight Log*, Profile. In the event pilots must rely on a manually-calculated USAF Form 70 (or equivalent), the C-130J Fuel Planning Worksheet found on [Figure 11.1](#) should be used for fuel planning. Enroute fuel is manually calculated by adding the required components supplied as standard or derived from charts or tabulated data in the applicable Performance Manual. *Fuel To Climb* charts are used to manually calculate climb fuel. *Range Summary* or *Specific Range* charts are used to manually calculate cruise fuel from Top-of-Climb (TOC) to overhead destination using an average gross weight. Continuation Fuel for each leg will be calculated using the following formula: ***Continuation Fuel = Fuel Remaining (beginning of leg) – Landing Fuel + Recovery Fuel.*** (T-3)

11.5.4. C-130J Mission Computer Profile.

11.5.4.1. The C-130J Mission Computer plans a complete climb, cruise, descent, approach and landing profile based on the inserted LEGS DATA and PERF CLIMB, CRUISE, and DESCENT factors. Accurate leg fuels, as calculated by the MC, are dependent on pilots ensuring that airspeed, altitude, winds, temperature, and fuel flow are correctly represented for each leg of the route and updated/corrected as in-flight conditions change. Because the flight profile is more than a planning tool, pilots must use good judgment when inputting forecast/planned information versus actual performance and conditions. During preflight and at each waypoint, the Fuel On Board (FOB) for remaining legs will be compared against the flight planned Continuation Fuel to ensure there is sufficient fuel to continue the mission as planned in order to meet or exceed destination fuel requirements. (T-3)

11.5.4.2. Once airborne, the FOB on the PERF INIT WEIGHT page is calculated (not sensed) using sensed Fuel Flow versus Time. Update the FOB on the PERF INIT WEIGHT page to the amount indicated by the totalizer only when the totalizer amount is less than the calculated FOB. (T-3) Use the most conservative of the FOB or totalizer readings when recording fuel remaining during in-flight fuel monitoring. (T-3) The CNI will provide a FUEL QTY ERROR advisory when the PERF INIT WEIGHT FOB and totalizer readings differ by more than 2500 lbs. for more than 10 minutes. Reserve Fuel (FIXED on PERF INIT WEIGHT) should be set to the Recovery Fuel value. The CNI supplies a Low Calculated Fuel advisory when the calculated EXTRA fuel on the PERF INIT WEIGHT page falls below zero. Destination and Alternate Landing Fuel can be obtained from the MC. Flight crews will use the MC to evaluate and verify destination landing fuel status after mission changes and reroutes and whenever a divert is required and/or extensive weather avoidance routing is required. (T-3)

11.6. In-flight Fuel Management. For a flight plan and corresponding fuel log to be most meaningful for in-flight fuel monitoring, the actual cruise altitude should be within 2,000 feet of planned altitude and airspeed within +/- 10 KTAS of planned airspeed. If initial cruise conditions do not fall within these parameters, the PIC should strive to reach them as soon as possible.

11.6.1. Fuel consumption will be monitored by comparing the FOB to predicted Fuel Remaining and the required Continuation Fuel on the flight plan. At a minimum, consumption comparisons will be accomplished and recorded on the Master Flight Plan (MFP):

11.6.1.1. As soon as practical after initial level off. **(T-3)**

11.6.1.2. At convenient waypoint intervals not to exceed 1 hour. **(T-3)**

11.6.1.3. At convenient waypoint intervals not to exceed 30 minutes if aircraft performance is critical or marginal (actual fuel is less than Continuation Fuel, icing conditions, weather avoidance, etc.). **(T-3)**

11.6.1.4. Any time re-routing occurs or a lower altitude than what was flight-planned is required to be flown. **(T-3)**

11.6.2. The fuel recording portion of the master flight plan may be discontinued at the discretion of the PIC when ALL of the following conditions have been met:

11.6.2.1. The Equal Time Point (ETP) has been crossed (Remote Continental airspace routes).

11.6.2.2. Fuel systems and quantity indicators are functioning normally.

11.6.2.3. There is obvious extra fuel and the +EXCESS fuel trend is favorable.

11.6.3. On Remote Continental airspace routes, prior to the ETP, if the EXCESS fuel becomes negative the PIC will consider and accomplish one of the following recommended actions:

11.6.3.1. Change the flight profile to ensure planned performance is reacquired and Fuel Reserves at destination will be met or exceeded. **(T-3)**

11.6.3.2. Continue and land short of intended destination (e.g. First Suitable Airfield (FSAF)) or proceed to intended destination based on updated weather forecast that no longer requires an alternate. **(T-3)**

11.6.3.3. Return to the departure base or the Last Suitable Airfield (LSAF). **(T-3)**

11.6.4. Flight Plan Changes and Diversion. When mission requirements or ATC dictates a change to the planned mission or route, the fuel must be recalculated to ensure safe completion of the flight. **(T-3)** It is not practical to complete a new flight plan fuel log so the MC is the primary method of deciding if a mission change or reroute can be accommodated.

11.6.4.1. For an unplanned or directed enroute divert, the FROM/TO page, with an associated cruise ground speed, can be used to determine an ETE. Using TO 1C-130J-1-1 or TO 1C-130(c)J-1-1 fuel burn, crews should be able to decide if the new routing is achievable without adverse effects on destination fuel. Do not accept a reroute that adversely depletes the destination Reserve Fuel as prescribed in this chapter. **(T-3)**

11.6.4.2. If the enroute change does not affect the intended destination, then in-flight fuel monitoring will consist of comparing the MC predicted Remaining Fuel with Flight Plan Continuation Fuel at the next point common to the reroute and the original flight plan. After any route alteration, crews should actively monitor fuel state by recording the Fuel Remaining values at abeam positions of the original flight plan and using the "Abeam" function of the INDEX/FIX INFO PAGE to crosscheck fuel status.

11.6.5. Declare "Emergency Fuel" when it is determined that the aircraft may land with less than 3000 lbs. Declare "Minimum Fuel" to ATC when it is determined that the aircraft may land with less than 3000 lbs. plus the Required Reserve.

Table 11.1. Fuel Load Components.

FUEL PLANNING	
RECOVERY FUEL	The minimum planned landing fuel at intended destination. This is the sum of the Minimum Landing Fuel, Required-Reserve, Wing Relieving Fuel (if required) and Alternate Fuel (if-required). This fuel is critical to calculating accurate Continuation Fuels for each leg; it must be updated in the Pre-mission Configuration screen of JMPS, if using a computerized flight plan. (T-3)
CONTINUATION FUEL	Fuel required at the beginning of each leg to be able to proceed to the intended destination and land with the Required Fuel
TANKERED FUEL	Fuel for succeeding legs without refueling
UNIDENTIFIED EXTRA	The difference between RRFL and actual ramp fuel load. This figure should not exceed 2,200 lbs of RRFL
WING RELIEVING FUEL	Additional fuel kept in the main tanks intended to counter wing bending moments and keep the aircraft within flight manual weight limitations
WEATHER AVOIDANCE	1,500 lbs if forecast thunderstorms are scattered or numerous along the route of flight
ICING	1,000 lbs if the route of flight has known or forecast icing conditions.
KNOWN HOLDING DELAYS	Fuel for planned/anticipated holding, including remote destinations. Compute at Four Engine Maximum Endurance Fuel Flow
ENROUTE	Fuel required from engine start through landing at the intended destination. Components include engine start taxi/takeoff. (STTO), climb, cruise approach fuel. Enroute Fuel will be obtained from the JMPS-CFP or Performance Manual
STTO	A component of enroute fuel. Fuel required for start, taxi and takeoff. Normally 800lbs. For known taxi delays or additional ground time in excess of 30 minutes, add 30 lbs/min. (T-3)
CLIMB	A component of enroute fuel. Fuel required from takeoff through climb to initial cruise altitude. If a manual calculation is required, the applicable performance manual will be referenced. (T-3) Unless required for mission accomplishment plan to climb no higher than ATC Cruise Ceiling per the Performance Manual
CRUISE	A component of enroute fuel. Fuel required from TOC to overhead intended destination. If a manual calculation is required, the applicable performance manual will be referenced. (T-3)
APPR	A component of enroute fuel. Fuel required for approach and landing from overhead destination. Normally 700lbs, which

	accounts for 1 instrument approach of no longer than 10 minutes. For longer approaches, follow on visual, and/or radar pattern work, compute fuel burn at 85 lbs/min. (T-3)
ALTERNATE	Fuel required from intended destination to alternate or most distant alternate when two are required. Flown at optimum cruise altitude using direct routing to the alternate at LRC airspeed. Fuel for a missed approach (2,000lbs) and second approach at the alternate airfield is required when the visibility only weather criteria is used to determine the suitability of the original destination
REQUIRED RESERVE	45 minute reserve, using maximum endurance airspeed at 10,000 feet MSL (20,000 feet for remote fields). Required overhead destination or alternate (If alternate is needed).
CONTINGENCY FUEL	15 minute reserve, using maximum endurance airspeed at 10,000 feet MSL (20,000 feet for remote fields).
DEPRESSURIZATION FUEL	Fuel from ETP to a recovery airfield, with 30 minute reserve. Calculated at LRC airspeed and 10,000 feet MSL. Plan on burning all other fuel. Compare with RRFL to see if additional fuel is required before flight. (T-3)
MINIMUM LANDING FUEL	3,000 lbs. If it is determined that the aircraft will land with less than this amount, a fuel emergency exists and ATC must be informed. This entry is separate from required reserve and contingency fuel. (T-3)

Figure 11.1. C-130J Fuel Planning Worksheet.

Instructions:					
Manual Flight Plan - begin at Step 1.					
Computer Flight Plan - begin at Step 5 and insert Enroute fuel.					
Ramp Gross Weight					
Initial Cruise Altitude					
Temperature Deviation					
Required Ramp Fuel Load (RRFL) Calculation			Depressurization Fuel Calculation		
1	Min Landing: 3000 lbs.		A	Min Landing (3000 lbs.)	
2	Required Reserve: 0+45		B	Depressurization Reserve (0+30)	

3	Alternate (see Table 8.1) - or-		C	Wing Relieving Fuel (if required)	
	Holding in Lieu of Altn: 1+15 (at remote destinations)				
4	Wing Relieving Fuel (if required)		D	High Altitude Fuel Burn (Takeoff to ETP)	
5	Recovery Fuel (1+2+3+4)		E	Low Altitude Fuel Burn (ETP to FSAF, 10K' MSL, 260 KTAS)	
6	Contingency: 0+15		F	Total Required (A+B+C+D+E)	
7	Tankered Fuel (if required for next sortie)		G	Mission Fuel (from Block 12)	
8	Approach (if not included in Enroute)		H	Depressurization Fuel (F minus G) (Zero if negative). Go to Block 13	
9	Icing: 1000 lbs (if known/forecast)				
10	Thunderstorms: 1500 lbs (if scattered or numerous)		Manual Flight Plan Enroute Fuel Calculation		
11	Enroute (from CFP or Block 11.5)		11.1	STTO: 800 lbs (normally)	
12	Mission Fuel (Total of 1 through 11)		11.2	Climb	
13	Depressurization Fuel (from Block H)		11.3	Cruise: ETE x Fuel Flow [] x [] =	
14	Required Ramp Fuel Load (RRFL) (12+13)		11.4	Approach: 700 lbs. (normally)	
15	Actual Ramp Fuel Load		11.5	Enroute Fuel (11.1+11.2+11.3+11.4)	
16	Unidentified Extra (15 - 14) (not more than 2200 lbs.)				

Chapter 12

COMBAT MISSION PLANNING

12.1. General. This chapter provides mission planning guidance for general C-130J tactical operations. Airdrop planning guidance is contained in [Chapter 15](#). It provides parameters used to employ the techniques and procedures of AFTTP 3-3.C-130J. Mission planning is normally conducted the day before the mission. The OG/CC or SQ/CC may elect to use a same day mission plan option. Planners and aircrews should reference AFTTP 3-3.C-130J for detailed planning guidance. The aircraft commander is ultimately responsible for the accuracy of the mission materials. Unit mission planning facilities should possess essential mission planning material.

12.2. Airdrop and Drop Zone (DZ) Restrictions.

12.2.1. Authorized DZ types and restrictions are listed in DAFMAN 13-217. Ensure DZs have adequate dimensions. Both pilots will verify CNI-MU CARP information with a valid DZ survey. Refer to DAFMAN 13-217 for DZ survey information/requirements/applicability. **(T-3)**

12.2.2. Use of Unmarked DZs. Unmarked DZs are normally used for contingency operations. Reference DAFMAN 13-217, Chapter 2 for unmarked DZ use. **(T-2)**

12.2.3. Area DZs are not authorized for mission computer directed airdrops. **(T-3)**

12.2.4. Multiple Points of Impact (MPI). See DAFMAN 13-217.

12.2.5. Multiple passes should be coordinated with the user during planning when necessary. If multiple passes are likely, they should be annotated on the chart. Unplanned racetracks may be performed provided crews have verified obstruction clearance.

12.2.6. Airdrop Damage Estimate (ADE). An ADE is required for all JPADS/ICDS airdrops, and may be appropriate for other drop types depending upon terrain, proximity to habitation, etc. **(T-3)** Refer to [Chapter 15](#) of this AFMAN and AFTTP 3-3.C-130J.

12.2.7. All airdrop missions must comply with appropriate FAA or Host Nation airspace restrictions. For all airdrops in uncontrolled FAA airspace, ensure a NOTAM is filed with the Flight Service Station nearest the objective area at least 48 hours in advance of the intended activity, regardless of actual or forecast weather. **(T-3)** NOTAM information will include:

12.2.7.1. Name of the nearest city or town and state.

12.2.7.2. Date and time period of intended activity.

12.2.7.3. Number and type of aircraft.

12.2.7.4. Altitudes.

12.2.7.5. When IMC operations are planned, include IFR Drop Corridor Ingress and Egress points of the route segment expressed in radial and DME from a NAVAID. **(T-3)** See [paragraph 12.7.5](#) for IFR Drop Corridor.

12.3. Landing Zone (LZ) Restrictions.

12.3.1. Landing Zone (LZ) Selection. Detailed assault zone criteria and illustrations can be found in DAFMAN 13-217. Both pilots will verify CNI-MU information with a valid LZ

survey, as applicable. (T-3) Refer to DAFMAN 13-217 for LZ operations or applicable waivers.

12.3.2. Aircraft Performance Planning. Aircrews must plan for aircraft performance limitations. Consider determining the maximum takeoff gross weight for worst-case conditions to simplify decision making during mission execution. (T-3)

12.3.3. During the turn to final, do not slow below the approach speed for the aircraft configuration. For maximum effort landings, the pilot will not slow to maximum effort approach speed prior to initiating the roll out on final. Roll out on final no lower than 150 feet AGL. (T-3)

12.4. Route Planning. Low-level flights, or flights below MSA as defined in [paragraph 12.6.3](#) for the planned route of flight, will be planned using tactical corridors. (T-3) Tactical corridors should be planned as wide as possible, to provide maximum situational awareness and flexibility. The standard width for a tactical corridor is 3 NM. Tactical corridor width can vary from 1 NM minimum either side of centerline, to as wide as desired (10 NM either side is the maximum recommended). Corridors do not have to be symmetrical, but must be annotated when different from the standard. (T-3) Tactical corridors should be wide over flat terrain and narrow in mountainous terrain.

12.5. Peacetime Route Restrictions. In addition to restrictions in AFMAN 11-202V3, specific country or theater of operations publications, and FLIP area planning, routes will not be planned or flown:

12.5.1. With less than 1 NM separation (3 NM in excess of 250 Knots Indicated Airspeed (KIAS)) when below 2,000 feet AGL from known sensitive environmental areas such as hospitals, fish hatcheries, ostrich and emu farms, large poultry complexes, recreation areas, institutions, and similar locations. (T-3)

12.5.2. With less than 3 NM separation from prohibited airspace. (T-3)

12.5.3. Less than 3 NM separation from nuclear power plants. (T-3)

12.5.4. Through restricted airspace, except transition or termination in such areas where the planning unit is a primary using agency or has approval of the controlling agency. (T-3)

12.5.5. In weather conditions less than those specified in this AFMAN and AFMAN 11-202V3. (T-3)

12.5.6. Below 1000 feet AGL within a 2000 foot radius over cities or towns shown as magenta shaded areas on 1:500,000 (TPC) scale charts. (T-3)

12.5.7. Over or through active live fire or impact areas that may not be specifically designated as prohibited or restricted areas. (T-3)

12.5.8. Below 500 feet AGL unless (T-3):

12.5.8.1. Host nation rules specifically allow such VFR operations.

12.5.8.2. Routes or training areas have been environmentally assessed and surveyed for 300 foot AGL operations. **NOTE:** This restriction does not apply to one-time-use routes. Consult FLIP AP/1B for published Military Training Route restrictions.

12.6. Altitude Planning. WARNING: Aeronautical charts do not depict man-made obstacles less than 200 feet AGL or a change in terrain until it exceeds the chart contour interval. The worst situation would occur if a 199-foot tower sat on terrain with an elevation just below the next higher contour. For a TPC (1:500,000) with a contour interval of 500 feet, this results in an uncharted obstacle existing 698 feet above charted terrain. Additionally, the highest spot elevation on any given leg may not be the highest terrain as in the case of gradually rising elevations. Planners must ensure accurate terrain analysis evaluates both spot elevations and the highest contour level. Refer to **Figure 12.1. CAUTION:** Some charts may depict terrain and obstacle altitudes in meters versus feet (e.g., JOG and TLM charts in some areas of the world). **NOTE:** The use of the vertical profile planning tool in FalconView, combined with Digital Terrain Elevation Data (DTED) data, is authorized for use to determine spot elevations on route segments with VVOD turned off. When VVOD is on, the vertical profile planning tool will determine the highest obstacle along the route segments and is authorized to determine MSA driving obstacles.

12.6.1. Low-Level Altitude Restrictions. The following minimum altitudes are established for C-130J operations. Higher altitudes may be dictated by FLIP/ICAO procedures, training considerations, terrain, or operational directives. **NOTE:** If planning low-level flight in areas where barometric altimeter settings will not be available, plan altimeter check points along the route to determine more accurate altimeter settings. **(T-3)**

12.6.1.1. Day VMC Enroute. Fly no lower than 500 feet AGL (or 300 AGL IAW **paragraph 12.5.8**) modified contour altitude above the terrain using visual references and radar altimeter. **(T-2)**

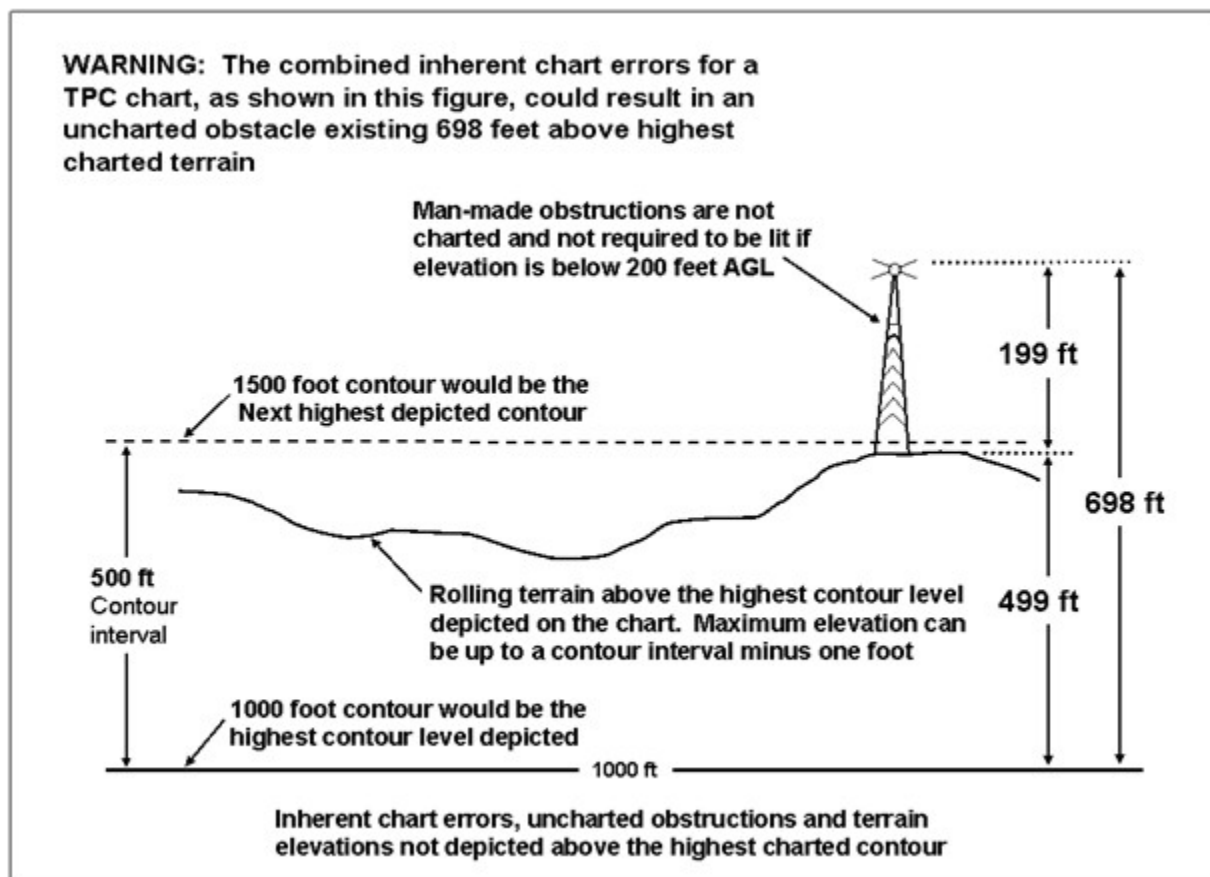
12.6.1.2. NVD Enroute Altitude. Fly no lower than an indicated altitude of 500 feet above the highest charted or SRTM/DTED spot terrain elevation, rounded up to the nearest 100-foot increment within the tactical corridor. **NOTE:** If SRTM/DTED is not available, NVD en route altitudes will also be calculated using 400 feet plus one chart contour interval above the highest depicted terrain contour, if higher. If the altitude for the next segment is higher than the current segment altitude, complete the climb prior to the segmentation point. If the altitude for the next segment is lower than the current segment, do not initiate descent until over the segmentation point. Once the controlling obstacle or terrain feature is visually identified or the aircraft is confirmed well clear, the crew may descend to the next segmented altitude. Fly with reference to the pressure altimeter, using the radar altimeter as a backup. **(T-2)**

12.6.1.3. Night (Non-NVD) Enroute Altitude. Fly no lower than Minimum Safe Altitude as defined in **paragraph 12.6.3** If the altitude for the next leg is lower than the current leg, do not initiate descent until over the turn point. Legs may be divided into segments for night altitude computations, depending on terrain differential or threats in order to allow flight closer to the ground. Once the obstacle or terrain feature is visually identified or the aircraft is confirmed well clear, the crew may descend to the next segmented altitude, if lower. Fly with reference to the pressure altimeter, using the radar altimeter as a backup. **(T-2)**

12.6.1.4. Man-Made Obstacles. All man-made obstacles must be avoided by 1 NM laterally, or 500 feet vertically, unless visually identified. This applies for both day and night flights, and also includes obstacles outside of the planned tactical corridor. **(T-2)** **NOTE:** If the planned altitude for a leg is more than 500 feet above a man-made obstacle,

this obstacle is not a factor. When flying at 500 feet AGL or below, all obstacles are a factor.

Figure 12.1. Inherent Chart Error.



12.6.2. IMC Enroute Altitude. Fly no lower than 1,000 feet (2,000 feet in mountainous terrain) above the highest obstruction to flight [man-made obstruction, terrain feature, spot elevation or SRTM/DTED spot elevation (if elevation data is available)] within 5 NM of route centerline. Round this altitude to the next 100-foot increment. If the altitude for the next leg is higher than the current leg altitude, climb will be completed before the turn point. If the altitude for the next leg is lower, do not initiate descent until over the turn point.

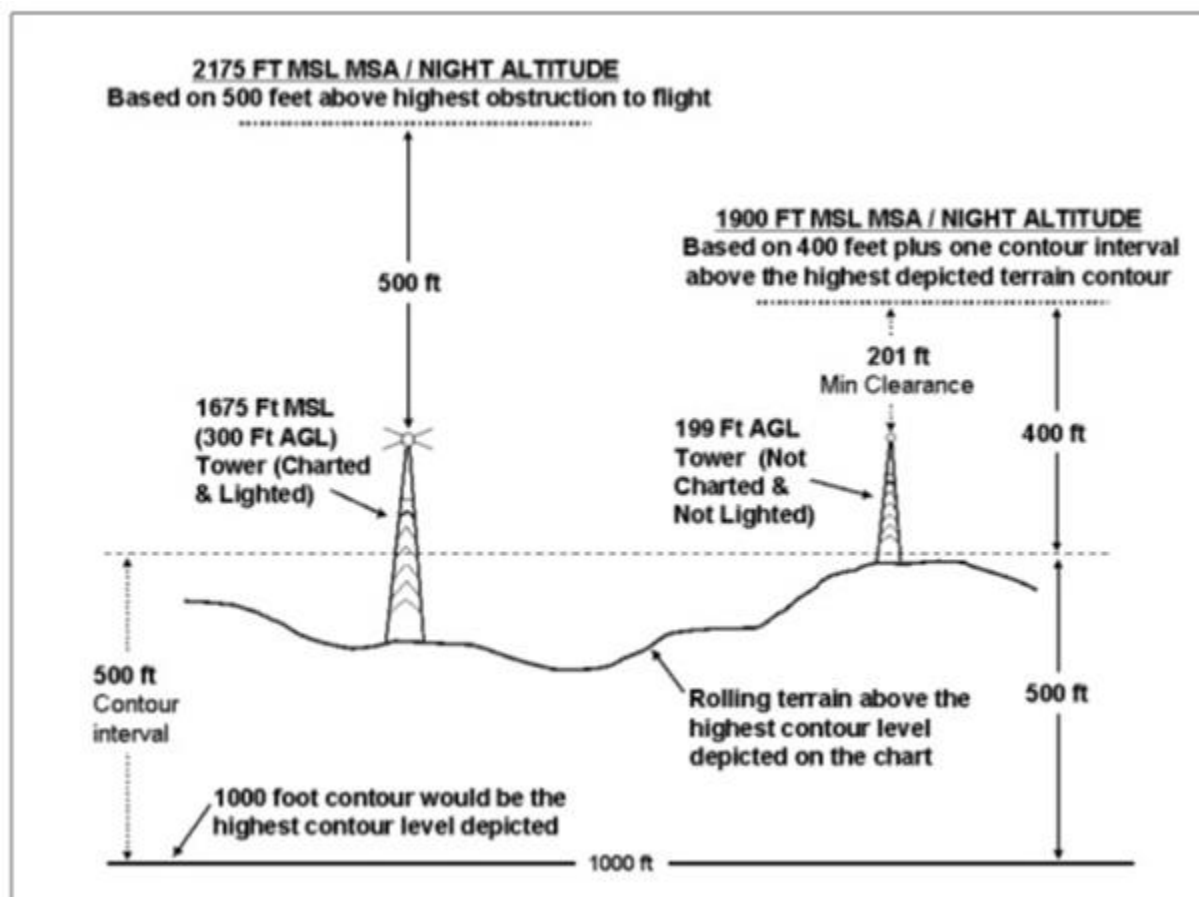
12.6.2.1. Minimum altitudes for IFR operations within published Military Training Routes (MTRs) in US sovereign airspace will be the computed leg MSAs unless a higher altitude is required by FLIP AP/1B. **(T-2)**

12.6.2.2. Assembly Altitude. Assembly altitude under IFR will be at or above the MEA or MOCA on published airways. **(T-2)** On direct flights off airways, assembly altitude will be no lower than OROCA, ORTCA, or an altitude that provides 1,000 feet (2,000 feet in mountainous terrain) above the highest obstacle within a radius of 5 NM of the course. **(T-2)** Under all conditions, aircrews ensure assembly altitude provides terrain and obstacle clearance for the formation. **(T-2)**

12.6.3. Minimum Safe Altitude (MSA). MSA is an initial VFR altitude that provides additional terrain and obstacle clearance while the aircrew analyzes situations that require interruption of low-level operations (route disorientation and equipment malfunctions or when either pilot must leave the seat during low-level operations, etc.). Plan MSA at an indicated altitude of 500 feet above the highest obstruction to flight [man-made obstacle, terrain feature, charted spot elevation, or SRTM/DTED spot elevation (if elevation data is available)], within 5 NM of route centerline to include turn radius. **NOTE:** If SRTM/DTED is not available, an MSA will also be calculated using 400 feet plus one chart contour interval above the highest depicted terrain contour, if higher. If the tactical corridor is > 5 NM of centerline, the MSA will be calculated for the tactical corridor width. An MSA will be computed for each leg, route segment, or entire low-level route. (T-2) See [Figure 12.2](#).

12.6.4. Emergency Route Abort Altitude (ERAA). ERAA is designed to provide positive IMC terrain clearance during emergency situations that require leaving the low-level structure. Planners may compute several ERAAs for route segments transiting significant terrain differentials, or a single ERAA for the entire low-level route, and annotate on the chart. To compute ERAA, add 1,000 feet (2,000 feet in mountainous terrain) to the elevation of the highest obstruction to flight within 22 NMs of planned route centerline. **NOTE:** Climbing to ERAA may put the aircraft in a controlled altitude structure requiring coordination with air traffic control agencies. **NOTE:** Pressure altimeters are calibrated to indicate true altitudes under international standard atmospheric (ISA) conditions. Any deviation from these standard conditions will result in erroneous readings on the altimeter. This error becomes important when considering obstacle clearances in temperatures lower than standard since the aircraft's altitude is below the figure indicated by the altimeter. Refer to the flight information handbook to determine correction.

Figure 12.2. Minimum Safe Altitude.



12.7. Airdrop Altitudes: **WARNING:** DZ surveys do not assure terrain and obstruction clearance. Planners and aircrew are responsible for ensuring clearance through mission planning/chart preparation.

12.7.1. Day VMC Drop Altitude. Fly minimum airdrop altitudes as specified in AFMAN 11-231 airdrop ballistics data or CONEMP/Tac Bulletin whichever has the most current date. Aircrew will visually avoid high terrain and obstacles in the vicinity of the DZ. (T-2)

12.7.2. NVD Drop Altitude. Fly NVD Enroute Altitude through slowdown. After slowdown, when the DZ is in sight and will remain in sight, or when a positive position is identified and adequate terrain and obstacle clearance is assured, the aircraft may descend to the specified minimum drop altitude in AMAN 11-231 airdrop ballistics data or CONEMP/Tac Bulletin whichever has the most current date. (T-2)

12.7.3. Night (Non-NVD) Drop Altitude. Fly no lower than an indicated altitude of 500-feet above the highest obstruction to flight [man-made obstacle, terrain feature, charted spot elevation, or SRTM/DTED spot elevation (if elevation data is available)] rounded up to the nearest 100-foot increment, within 3 NM of run-in centerline from slowdown through escape, or as specified in AFMAN 11-231. **NOTE:** If SRTM/DTED is not available, non-NVD drop altitude will also be calculated using 400 feet plus one chart contour interval above the highest depicted terrain contour, if higher. After slowdown, when the drop zone is in sight and will

remain in sight, or when a positive position is identified and adequate terrain and obstacle clearance is assured, the aircraft may descend from night (non-NVD) enroute altitude to night (non-NVD) drop altitude.

12.7.4. IMC Drop Altitude. Fly minimum IMC drop altitudes at 500 feet above the highest obstruction to flight [man-made obstacle, terrain feature, charted spot elevation, or SRTM/DTED spot elevation (if elevation data is available)] rounded up to the nearest 100-foot increment, within 3 NM of the run-in centerline from DZ entry point to DZ exit point, or as specified in AFMAN 11-231, whichever is higher. **NOTE:** If SRTM/DTED is not available, IMC drop altitudes will also be calculated using 400 feet plus one contour interval above the highest depicted terrain contour, if higher. During a parallel descent, do not descend to IMC drop altitude until the last aircraft of the element or formation is at or past the DZ entry point and all aircraft are within 3 NM of the run-in centerline. **(T-2)**

12.7.5. IFR Drop Corridor. The IFR Drop corridor is where aircraft may transition between IMC enroute altitude and IMC drop altitude to perform airdrop operations. The beginning of the corridor, the IFR Drop Corridor Ingress Point, is a maximum of 40 NM from the IFR Drop Corridor Egress Point (co-located with the DZ Exit Point). Plan segmented corridor altitudes not lower than 500 feet above the highest obstruction to flight [man-made obstacle, terrain feature, charted spot elevation, or SRTM/DTED spot elevation (if elevation data is available)] rounded up to the nearest 100-foot increment, within 3 NM either side of centerline. In the NAS for IMC drop operations outside of special use airspace, Federal Aviation Regulation (FAR) Exemption 4371 is required to descend below minimum IFR enroute altitude. **NOTE:** If SRTM/DTED is not available, segmented corridor altitudes will also be planned using 400 feet plus one chart contour interval above the highest depicted terrain contour, if higher.

12.7.6. IMC Letdown Corridor. Develop IAW AFTTP 3-3.C-130J.

12.7.7. LCLA airdrops: For night LCLA airdrops aircrew will abide by restrictions on 12.7.3, Minimum night NVD LCLA drop altitude is 300ft AGL, Aircrews are responsible for thorough objective area analysis to ensure aircraft safety, Situation permitting, notify the user if airdropping above the expected LCLA altitude (above 300ft AGL).

12.7.7.1. LCLA training airdrops are authorized with SATBs and may be conducted at LCLA altitudes (no lower than 300ft AGL day or night (on NVDs)). Actual LCLA airdrop is required for initial certification (unless approved otherwise by MAJCOM/A3 or Deputy).

12.8. Navigation Chart Preparation. Mission planners will construct a master chart for mission briefings and aircrew reference. **(T-3)** Planners should construct the chart using computerized mission planning systems if available. Digital Map displays are the primary reference for low-level navigation; however, the crew will carry a tactical navigation chart (paper or electronic). At a minimum, tactical navigation charts and DIGITAL MAP will be annotated/updated with any added, deleted, or changed information in the most recent VVOD or supplement. In no case will VVOD coverage be less than 22 NMs either side of the entire planned route of flight. Crews may trim charts to no less than 10 NMs of centerline after establishing the ERAA. Color copies, if available, of a master chart reduce the probability of missing or misplotted data on aircrew charts. **(T-3)**

12.8.1. Chart Annotation. Annotate the master chart IAW AFTTP 3-3.C-130J annotation symbology. Aircrews and planners may also refer to AFPAM 11-216, *Air Navigation* for

detailed chart annotation symbology. Chart annotations will have as a minimum: turn points, initial point, DZ, course line, course data, VVOD and date, ERAA and chart series/date. (T-3)

12.8.2. Digital Map displays may incorporate enhanced overlays and custom maps generated from computerized mission planning systems. Handle PCMCIA cards containing classified information via standard COMSEC measures. Placing classified PCMCIA cards into the C-130J External Mass Memory Unit (EMMU) does not classify the Digital Map Unit system.

12.8.3. The Digital Map display meets AFMAN 11-202V3 requirements for appropriate navigational and plotting charts to meet mission-specific needs.

12.8.4. VVOD Crews will select the following settings when utilizing VVOD to ensure completeness of coverage:

12.8.4.1. Hide above: 1:500K

12.8.4.2. Hide Text: Never

12.8.4.3. Basic Settings:

12.8.4.4. Red/Blue: User desired

12.8.4.5. Hide towers less than: 200 AGL – this is the maximum allowable setting, user can define any level they desire below 200 AGL as mission requirements dictate.

12.8.4.6. Short Tower height definition: 1,000

12.8.4.7. De-Clutter level: A/R **NOTE:** applying any de-clutter level may hide factor obstacles that are required to be identified during NVD low level flights. Crews will Plan with de-clutter off, then compare the desired de-clutter level with de-clutter off to ensure factor obstacles are identifiable, and chart readability/usability is maintained. Crews will not use a de-clutter level that combines obstacles more than 1/2 mile apart.

12.9. Mission Forms and Logs. The crew will carry an approved flight log (Form 70, etc). (T-2)

12.10. Navigation System.

12.10.1. Verification. Visual references and radar Offset Aim Points (OAPs) can be used to verify/update navigation systems according to airland or airdrop mission requirements. The following solutions are acceptable for verifying/updating the navigation system, listed in order of preference:

12.10.1.1. OAPs are generated during planning, with precision coordinate and elevation information, including those listed in PFPS. Advance coordination with a targeteer is normally required. If targeteer information is not available, mission planners and aircrew may generate OAPs. Ideally OAPs should be 5-10 miles apart and approximately 45 degrees off of plotted course, if able.

12.10.1.2. Visual Reference Points (VRPs) generated during planning, which include any identifiable point with precision latitude/longitude and elevation information. This includes turn points, or identifiable structures such as an ECHUM tower.

12.10.1.3. Ad hoc references derived from a navigation chart, such as a road intersection or powerline crossing.

12.10.2. Required Navigation Accuracy. The navigation accuracy required for a given mission will vary depending on the type of mission and other considerations. For all airdrops and Self- Contained Approaches (SCA) plan to verify navigation accuracy within 10 minutes of slowdown/Final Approach Fix (FAF). For IMC routes, navigation accuracy will be verified at least hourly. **(T-3)**

12.11. Route Study. Crew route study is mandatory before accomplishing flight in the low-level environment. At a minimum, discuss aircrew coordination, division of duties, and threat avoidance. **(T-3)**

12.12. Mission Debriefing. Conduct immediately after the mission, if practical, using the Mobility Air Force (MAF) Debrief Guide (located in EPubs-All_Global). When specific mission variables dictate, e.g., tactics, Formation, airdrop, etc., the PIC or MC may use the Debrief Guides in the AFTTP 3-3.C-130J CMG to augment the MAF debrief Guide.

Chapter 13

AIRLAND EMPLOYMENT

13.1. General. Detailed airland employment guidance can be found in AFTTP 3-3.C-130J Chapter 6, *Airland Operations*.

13.2. Self-Contained Approaches (SCA).

13.2.1. The C-130J mission computer can derive approach course guidance using the LZ approach or IPRA functions. The approach course guidance does not ensure obstacle clearance. The mission computer only mathematically derives a final approach course and glide path from pilot input data.

13.2.2. VMC SCAs. Aircrew may build and fly a SCA as necessary. The PM will visually ensure obstacle and terrain clearance. **(T-3)**

13.2.3. IMC SCAs. IMC SCAs will be flown with the following restrictions:

13.2.3.1. SCAs will only be flown from a published SCA approach as defined in AFMAN 11-202V3. **(T-2)**

13.2.3.2. Required navigation accuracy for an SCA is:

13.2.3.2.1. For BLK 6.0 aircraft, to provide an early indication of degraded navigation accuracy, set the POS ALERT(s) at 0.03 NM (~ 55 yards; FOM 2) and 0.05 NM (~ 110 yards; FOM 4). If both INAV solution FOMs are less than or equal to 4 and no POS ALERTS (INAV Pos Miscompare ACAWS/INAV Pos Difference ACAWS) are indicated, navigation accuracy (300 yd. CEP) is verified. If these conditions are not met a radar or visual update is necessary to verify/improve navigation accuracy prior to performing SCAs. **NOTE:** For BLK 6.0 aircraft, anytime a position bias (update) has been added to the EGI INAV solution, displayed FOM values do not reflect the result of the bias.

13.2.3.2.2. For BLK 6.0 aircraft flying a SCA, verify navigation accuracy within 10 minutes of the FAF. Do not descend from FAF altitude without verifying the active ship solution if any of the following conditions exists: either FOM greater than 4, INAV Pos Miscompare ACAWS, or INAV Pos Difference ACAWS. **(T-2)**

13.2.3.2.3. For BLK 8.1 aircraft, ANP/TNP should be the primary reference for navigation accuracy and should be verified within 10 minutes of the FAF. Reference section 5.15.6.1.3. for proper setup of the CNI-MU for both CIVIL and MISSION modes. In either mode an ANP/TNP of less than 0.07 indicates adequate navigation accuracy to conduct a SCA.

13.2.3.3. Both pilots will verify all SCA data entered in the MC using the published SCA approach (e.g. IPRA). **(T-2)**

13.2.3.4. WX minimums will be IAW the published procedure, but no lower than 300-1. **(T-2)**

13.3. Tactical Visual Flight Rules (VFR) Approaches.

13.3.1. Operations to unmarked/unlit LZ are IAW AFMAN 11-202V3 and DAFMAN 13-217.

13.3.2. Approaches. Plan approaches to the LZ IAW AFTTP 3-3.C-130J and airfield identification procedures published in the OPOD or SPINS. Brief any deviations from approaches described in AFTTP 3-3.C-130J. **(T-3)**

13.4. Engine Running Offload and Onload (ERO) Procedures.

13.4.1. Use ERO procedures when necessary to expedite aircraft or cargo movement, meet time requirements of unit moves, joint training exercises, contingencies, or to enhance the crew duty day. The PIC is responsible for prior coordination with mission execution authority for approval of ERO operations as well as early takeoffs. The loadmaster will direct all on and offload operations using hand signals pre-briefed with personnel on the aircraft. This does not preclude the necessity of performing a load team briefing before commencing loading/unloading operations. **(T-3)** Other qualified loadmasters (CRG, aerial port) may perform these duties; however, the aircraft loadmaster retains overall responsibility for the operation.

13.4.2. With the exception of small arms ammunition (Hazardous Class/Division 1.4), do not use ERO procedures when explosive cargo is involved unless authorized in the JA/ATT, exercise, operation or contingency air tasking order, or SPINS. **(T-2)**

13.4.3. ERO procedures may be used for any mix of personnel or cargo. Material handling equipment should be used if palletized cargo is to be onloaded or offloaded. Passengers will be escorted by a crewmember or qualified CRG, aerial port, or airfield control (e.g. STT) personnel, and auxiliary ground loading ramps should be used when emplaning or deplaning through the aft door and ramp. Unless mission requirements dictate otherwise, deplane passengers before cargo, and enplane after cargo. PICs must assess prevailing weather, lighting and parking location to ensure safe operations. **(T-3)**

13.4.3.1. If ground crews are not NVD qualified, EROs must be accomplished with lighting in the cargo compartment sufficient to permit MHE drivers to see marshaller's signals, safely position MHE and maneuver the load behind the aircraft without use of NVDs. **(T-3)** LMs may use NVDs to maintain SA of the load team behind the aircraft before or after actual loading. **NOTE:** If needed for pilot seat swaps, LMs may monitor brakes, interphone, and radio. **NOTE:** At their discretion, ACs may ERO any category of passenger. The number of passengers and amount of baggage to be onloaded or offloaded should be taken into consideration. The well-being of the passengers should be considered at all times. **WARNING:** Do not onload or offload through the crew entrance door and cargo ramp and door at the same time. **(T-3)** Paratroop doors will not normally be used.

13.4.4. General Procedures.

13.4.4.1. PICs will brief crewmembers on the intended ERO operation.

13.4.4.2. The parking brake will be set and at least one pilot in the seat will monitor brakes, interphone, and radio. **(T-3)**

13.4.4.3. Use wing leading edge and taxi lights to enhance safety at night as the situation dictates.

13.4.4.4. Station another crew member (if available) on interphone or public address (PA) in the cargo compartment as safety observer. Safety observers will remain clear of all cargo. **(T-3)**

13.4.5. Offload Preparation/Procedures. Prior to landing, the loadmaster will brief all personnel in the cargo compartment regarding their locations, duties, and responsibilities during the ERO. (T-3)

13.4.5.1. Brief drivers offloading vehicles on the following items:

13.4.5.1.1. Exact offload procedures and applicable signals to be followed.

13.4.5.1.2. When cleared by the loadmaster, to assume their position. Actuate brake pedal sufficiently to ensure brakes are operational. Vehicles requiring a build-up of air pressure to provide brake pressure must delay pressure build-up until engine start.

13.4.5.1.3. The loadmaster will direct vehicle engines to be started when the aircraft comes to a complete stop and the cargo ramp and door are open. (T-3)

13.4.5.1.4. Vehicle parking brakes will not be released until all restraint is removed and cleared by the loadmaster. (T-3)

13.4.5.2. Brief troops on the following items:

13.4.5.2.1. Secure baggage aboard vehicles, if applicable.

13.4.5.2.2. Deplane when directed by the loadmaster.

13.4.5.3. After the aircraft is slowed to taxi speed, the loadmaster may remove all tie downs except one forward and one aft restraint, open the aft cargo door, and position the ramp no lower than horizontal. After the aircraft is stopped and upon clearance from the pilot, the loadmaster lowers the ramp, and clears off headset (if necessary) to direct on or offload operations. **WARNING:** If a combat offload of pallets is to be accomplished before offloading vehicles, do not remove any vehicle restraint until after the combat offload is complete. (T-3) **NOTE:** Loadmasters will ensure vehicles and troops proceed directly aft of the aircraft at least 50 feet before turning and/or 300 feet before stopping. (T-3)

13.4.5.4. Personnel on/offload through the crew entrance door.

13.4.5.4.1. Station a crewmember (normally the loadmaster) on interphone with cord held taut at approximately 20 feet from the crew door at an angle of approximately 45 degrees from the aircraft axis.

13.4.5.4.2. Brief deplaning personnel to secure loose articles and remain forward of the interphone cord.

13.4.5.4.3. No enplaning personnel will approach the aircraft until the loadmaster is in place. (T-3)

13.4.6. Upload Preparation/Procedures. Review the passenger and cargo manifests, crew lists, and complete weight and balance clearance form for the subsequent sortie. **NOTE:** If downloading to an empty aircraft, a DD Form 365-4 is not required. Ensure the PERF WT and WT and BALANCE pages of the CNI-MU are updated prior to takeoff.

13.5. Combat Offload Procedures.

13.5.1. Combat offload provides a means of offloading single, multiple, and married pallets, airdrop platforms, or CDS bundles without the use of material handling equipment. The

controlling C2 commander, MAJCOM/A3 or Deputy or the DIRMBOFOR may authorize combat offload when conditions warrant. The method of combat offload will be determined by the aircrew based on the conditions at the offload site. Unit OG/CC may approve unilateral combat offload training.

13.5.2. Combat Offload Method A.

13.5.2.1. A taxiway or ramp at least 500 feet long is required, however, 1,000 feet is desired to provide a margin of safety. When pallets, platforms, or containers are offloaded one at a time, use a longer taxiway based on the number to be offloaded. **WARNING:** Many explosive items have specific “drop” criteria that, if exceeded, render the item useless or dangerous to the user. Explosives and munitions shall not be combat offloaded. **(T-2) Exception:** Small arms ammunition (hazard class and division 1.4) and explosives/munitions rigged for airdrop may be combat offloaded. **CAUTION:** When using Method A on excessively rough, sharply undulating, or battle-damaged surfaces, damage to the aircraft ramp may occur. Reducing forward taxi speed on these surfaces will reduce aircraft oscillation. The AC must determine if the offload area will permit the offload operation to be conducted without damage to the aircraft or equipment.

13.5.2.2. Combat offload of fragile and sensitive cargo items (e.g. computers) that might be damaged by standard Method A combat offload procedures will not be attempted without user concurrence. If the nature of the mission dictates that cargo must be offloaded, aircrews may lower the ramp to approximately 18 inches above the ground. **CAUTION:** Do not attempt to lower the ramp below horizontal unless the UNRESTRICTED RAMP TRAVEL light is illuminated. **Exception:** UNRESTRICTED RAMP TRAVEL light will not illuminate when cargo compartment lights are in the covert position. **NOTE:** Normal Method A procedures cannot be used with the ramp below the horizontal position. In this case the loadmaster must release the locks using either the PLCUs or RECP Jettison switches.

13.5.2.3. Pallets may be offloaded, without ballast, using this method provided their total weight does not exceed 12,000 pounds, and the height of the pallets fall within cargo height jettison limit in Section III of the flight manual or Section V of the cargo loading manual.

13.5.2.4. Airdrop rigged platforms up to 24 feet in length may be offloaded, without ballast, using this method provided their weight does not exceed 12,000 pounds. **NOTE:** Pallets and airdrop rigged platforms over 12,000 pounds total weight may be offloaded using this method, provided ballast or cargo equal to the difference between 12,000 pounds and the weight of the pallets or platforms (to be offloaded) remains in C through F compartments during offload (Example: A 17,000 pound married pallet or airdrop platform requires 5,000 pounds of ballast or cargo to remain in C through F compartments during the offload)

13.5.2.5. CDS may be combat offloaded using this method. The static line retriever may be used via manual activation if the WGRS is not available. Manual gate cut may be done if WGRS is not available and the retriever is inoperative. With Centerline Vertical Restraint (CVR), offload will be accomplished one side at a time if the total bundle weight exceeds 12,000 pounds. **(T-3)** Non-CVR sticks may be offloaded if the total weight is less than 12,000 pounds. Without the CVR, if the total weight of the bundles exceeds 12,000 pounds bundles should be restrained in groups of four or less and offloaded one group at a

time. For the unplanned combat offload of non-CVR bundles, restrain the bundles as described above. Perform an initial offload via the static line retriever, and on sequential offload remove aft restraint before clearing the pilot to taxi. Consider the slope of the offload site which may cause bundles to roll aft upon removal of restraint.

13.5.3. Combat Offload Method B. Use this method to offload married pallets that do not fit the criteria for Method A or for which no ballast is available for married pallets weighing between 12,000 to 15,000 pounds. Use four serviceable steel 55-gallon drums under each pallet to be offloaded. The correct number of steel drums needed to complete this type of offload must be available at the offload site or must accompany the load when conditions at the offload site are unknown. **WARNING:** The maximum weight for pallets to be offloaded across the ramp at any one time when using Method B is 15,000 pounds. Do not use Method B for airdrop- rigged platforms to prevent binding the platform under the vertical restraint rails. **(T-3) CAUTION:** Aircrews will ensure that the aircraft CG will not fall aft of 39.9% MAC (Load Station (LS) 753/Flight Station (FS) 553) at any time during the offload to preclude raising the aircraft nose wheel off the ground. This is accomplished by considering the entire weight of the pallet to be combat offloaded to be resting at the aft edge of the cargo ramp (LS 1141/FS 861) and calculating the resulting aircraft CG. **(T-3)** The Aircraft Commander will verify all CNI Weight and Balance Page data entries, actual fuel, actual cargo weight and cargo position are accurate, prior to commencing Method B offload operations. **NOTE:** If downloading to an empty aircraft, a DD Form 365-4 is not required. Ensure the PERF WT and WT and BALANCE pages of the CNI-MU are updated prior to takeoff.

13.6. Emergency Airlift of Personnel. Apply the following procedures to ensure a safe, efficient loading method for the emergency airlift of personnel and aeromedical evacuation (AE) of litter patients from areas faced with enemy siege, hostile fire, for humanitarian evacuations, or when directed by the execution authority.

13.6.1. Emergency airlift normally is accomplished without the use of individual seats or safety belts. The number of personnel that fit on the cargo floor will depend on individual size. Consider loading in groups of 12 to 16 (depending on size) to control loading operations. If available, pallets may be installed to create a subfloor in the aircraft to provide additional insulation from the aircraft floor. If pallets are unavailable, ensure all applicable roller conveyors are stowed.

13.6.1.1. When available, use mattresses or other cushioning material for seating.

13.6.1.2. Seat troops, passengers, and ambulatory patients facing forward.

13.6.1.3. Attach a tiedown strap for each row of personnel to provide forward restraint and body stability.

13.6.1.4. Secure baggage on the cargo ramp/floor. Excess baggage and cargo secured on the cargo ramp/floor will decrease the number of troops, passengers, and patients proportionately.

13.6.1.5. Swiss seats are also an acceptable form of restraint. Individuals utilizing this method will wear a rigger's belt connected to the cargo floor (or a pallet tie down ring) with a lanyard and carabineer. **(T-3)**

13.6.2. AFMAN 11-202V3 dictates flight altitude limitations based on oxygen availability for passengers.

13.7. Airfield Marking.

13.7.1. Airfields with a valid giant report not categorized as a landing zone may be operated at without standard markings so long as there are visible means to discern landing distance. **(T-3)**

13.7.2. Landing zones: All night operations to landing zones require a minimum of Airfield Marking Pattern (AMP-3) markings IAW DAFMAN 13-217. **(T-2) EXCEPTION:** MAJCOM A3 may approve use of AMP-4 operations.

Chapter 14

AIRCRAFT FORMATION

14.1. General. This chapter covers basic formation procedures and operations. All procedures described apply to all C-130J aircraft. The broad term formation as used does not differentiate between specific tactics of enroute formation or visual formation. Specific references to each tactic must be made to ensure complete understanding. The standard formation building block is a two-ship element. Procedures and techniques to fly C-130J formation are outlined in AFTTP 3-3.C-130J.

14.1.1. All formation flights will be planned, briefed, conducted, and critiqued in accordance with this chapter, AFTTP 3-3.C-130J, and TO 1C-130J-1. Consider safety, aircrew capability, proficiency, survivability and user needs when planning any formation tactic. **(T-3)**

14.2. Specified Times. The mission commander determines the sequence of events and mission times based on mission requirements. Local SOEs for formation training missions may be established for use at home station. Relay changes in briefing or mission timing to all formation members at the earliest opportunity.

14.3. Weather Minimums. Formation takeoff and landing minimums are the minimums for the lowest suitable approach at the airfield, but not lower than 200 feet and one-mile visibility (RVR 5000 ft). During IFR formation operations, adhere to both ceiling and visibility minimums. If departure ceiling or visibility is below published landing minimums, but above 200 feet and one-mile visibility (RVR 5000 ft), the formation may takeoff if the requirements for a departure alternate as prescribed in [Chapter 5](#), are met. If the runway has dual RVR readouts (approach and departure end of the runway) both ends must be at least RVR 5000 ft. **(T-3)**

14.4. Ground Operations. Minimum taxi interval is one aircraft length with four engines operating and two aircraft lengths with two engines operating (or two in HOTEL mode). Lead will obtain taxi and takeoff clearance. **(T-3)**

14.5. Communications and Radio Procedures. Radio and interphone discipline are critical factors in maintaining formation integrity. The mission commander will ensure all formation members have a complete understanding of the radio monitoring plan. **(T-3)** Refer to AFTTP 3-3.C-130J for specific formation communication procedures.

14.6. Launch, Departure, and Level-Off.

14.6.1. The minimum takeoff interval between aircraft is 15 seconds. **(T-3)** Takeoff intervals may be increased, or sequence may be varied as necessary, depending on aircraft acceleration and performance, training requirements, weather, airfield conditions, and mission requirements.

14.6.2. For aborts during takeoff, the pilot monitoring immediately transmits an abort call (three times using formation position number) on interplane. The PM will repeat the call on primary ATC frequency when the situation allows. Clear the runway as quickly as safety allows. Succeeding aircraft will acknowledge abort callout and sympathetically abort their takeoff roll. Succeeding aircraft not on takeoff roll will hold until the runway is clear. **(T-3)** PIC may brief alternate crew radio responsibilities as required.

14.6.2.1. Avoid using HAVE QUICK or secure voice as this may hinder interplane communication during formation takeoffs.

14.6.3. To prevent damage to succeeding aircraft, do not advance power above flight idle until takeoff roll is started. **(T-3)** Use a judicious and smooth application to achieve takeoff power.

14.6.4. Formation leaders ensure all aircraft use the same altimeter setting.

14.6.5. Airborne Aborts. Any aborting aircraft should clear the planned departure path and take appropriate actions dictated by the reason for abort. Aborting aircraft should plan to obtain ATC clearance prior to altering their route, or declare an emergency and deviate as necessary. In all cases, notify formation lead of intentions.

14.7. Enroute.

14.7.1. At no time will aircraft be operated within 500 feet of another aircraft. **(T-3)**

14.7.2. Lead will announce airspeed changes of 15 knots or greater at night. **(T-3)**

14.7.3. Inadvertent weather penetration procedures will be briefed to the formation IAW AFTTP 3-3.C-130J. At a minimum, formation lead will direct the formation to a safe altitude, heading, airspeed, and aircraft spacing. **(T-3)**

14.8. No-Drop Decisions. When a situation requires a formation no-drop, lead will notify the flight over interplane and all aircraft will acknowledge. **(T-3)** If radio silence is necessary, lead will pass a SKE no-drop command. Do not transmit individual aircraft no-drops outside the aircraft. **(T-3)**

14.9. Visual Procedures.

14.9.1. Departure and Assembly. After crossing the runway departure end, wingmen adhere to ATC requirements and assume the pre-briefed position.

14.9.2. Visual Rejoins.

14.9.2.1. The rejoining aircraft will establish a minimum of 500 feet altitude separation until the formation is in sight and clearance to rejoin is granted. **(T-3)**

14.9.2.2. Rejoining aircraft must be in position, at formation altitude, by “green light” to accomplish the drop. **(T-3)**

14.9.3. Tactical Formation Maneuvering (TFM). Both pilots must be on NVDs to fly TFM at night. **(T-3)**

14.9.4. Visual Run-In and Slow Down. Unless tactically unsound, night slowdowns will include an aural or visual signal. **(T-3)**

14.9.5. Drop Execution. Regardless of the type of drop spacing being used (In-Trail, pre-briefed, etc.), the minimum drop spacing is 2,000 feet from the preceding aircraft. Wingmen will notify lead if they see any situation which may result in an unsafe or inaccurate airdrop. **(T-3) WARNING:** Dropping at a lower altitude than the preceding aircraft may cause loads or personnel to impact the lower aircraft, causing damage or fatalities. **WARNING:** When aircraft in formation are dropping loads with significantly different rates of fall additional mission planning is required to ensure adequate spacing prevents the possibility of load impact.

14.9.5.1. CDS Airdrop. Minimum spacing to drop CDS in formation is 6,000 feet. **(T-3)** Aircraft not dropping CDS and using 50 percent flaps may establish normal spacing following a CDS aircraft. **WARNING:** Attempting to regain position by only reducing power or airspeed places the aircraft in a nose high, low-power situation and may lead to a stall.

14.9.6. Visual Recovery.

14.9.6.1. For formation recoveries roll out on final at no less than 150 feet AGL. **(T-3)**

14.9.6.2. Desired landing interval is 20 seconds; minimum is 15 seconds. **(T-3)**

14.9.6.3. Do not perform touch-and-go landings during formation recoveries. **(T-3)**

14.10. Coordinated Airplane Positioning System /Station Keeping Equipment Procedures.

14.10.1. Accomplish a SKE flight command check prior to takeoff by passing a single command. **(T-3)**

14.10.2. Priority of maneuvers/signals is (1) altitude, (2) heading, and (3) airspeed. Element leads immediately relay acceleration, deceleration, climb, and descent CAPS commands. **(T-3)**

14.10.2.1. All altitude changes will be signaled. **(T-3)**

14.10.2.2. Lead will signal unplanned heading changes of more than 10 degrees. **(T-3)**

14.10.2.3. Lead will signal accelerations and decelerations of greater than 10 knots. **(T-3)** **CAUTION:** With autothrottle engaged in CAPS mode, commanded speeds may be above aircraft configuration limiting speeds.

14.10.2.4. In CAPS mode, do not couple the autothrottle until in formation position and at assembly altitude. **(T-3)**

14.10.3. SKE Orbit/Rejoin Procedures.

14.10.3.1. Maintain 1,000 feet above or below the formation until in position and permission to rejoin is granted. **(T-3)**

14.10.3.2. The rejoining aircraft must be stabilized in position at formation altitude by the IP (IMC) or by one-minute prior to Time Over Target (TOT) (VMC) to accomplish the drop. **(T-3)**

14.10.4. SKE Enroute Procedures. Normally, spacing for CAPS/SKE formation is 4,000 feet for wingman and 8,000 feet for element leads. Minimum spacing between aircraft will be 4,000 feet. **(T-3)** The cross-path distance for enroute navigation is 700 feet in the most appropriate direction for the wingman aircraft and 0 cross-path for element leads. **(T-3)** **NOTE:** During long missions, mission commanders may extend enroute spacing and/or cross-track to reduce fatigue, as required.

14.10.5. Loss of SKE. Notify lead in all cases. Reference AFTTP 3-3.C-130J for additional information. **(T-3)**

14.10.5.1. Loss of all SKE indications in IMC will require a breakout. Use the following procedure if an alternate plan was not briefed:

14.10.5.2. If the formation is in straight and level flight, climb 500 feet, turn 30 degrees in the safest direction from the base heading for 30 seconds, and then return to base heading. If the formation is in a turn, roll out and climb 500 feet. Lead will contact (or direct contact to) ATC for a separate clearance. **(T-3) CAUTION:** Performing the above maneuvers in a radar pattern may place an aircraft outside of protected airspace.

14.10.6. Inadvertent weather penetration (IWP) actions are for emergency use and do not constitute authority to violate AFMAN 11-202, Volume 3, *General Flight Rules*, FAR, or host nation procedures. Exercising these procedures under actual weather conditions may constitute a flight violation subject to appropriate action by the USAF and FAA or host nation aviation authorities. Individual aircraft should remain VMC if there is sufficient warning to take evasive action. Take all practical measures to avoid entering controlled airspace without ATC clearance

14.10.6.1. Inadvertent Weather Penetration with SKE.

14.10.6.1.1. Lead commands “EXECUTE INADVERTANT WEATHER PENETRATION WITH SKE” and then states base altitude, base heading and base airspeed at a minimum. Base altitude will be at or above ERAA.

14.10.6.1.2. All aircraft immediately turn to base heading while beginning a climb to base altitude using 4 FPA (approximately 1,500 fpm) and capturing base airspeed.

14.10.6.1.3. Once established in the climb, all aircraft display CAPS. Element wingmen set X-PATH to 1,000 feet left or right in the safest direction.

14.10.6.1.4. When level at the base altitude, Lead commands the formation to “ESTABLISH SKE SPACING.” On this command, wingmen reduce airspeed 15 knots, drift back until established at 4,000-foot along path (A-PATH).

14.10.6.1.5. When established at 4,000-foot A-PATH, reset and intercept appropriate X-PATH. Do not couple both the autopilot and autothrottles to CAPs until established in formation position.

14.10.6.1.6. If the formation is unable to reestablish visual conditions, Lead contacts ATC for a clearance.

14.10.6.2. Inadvertent Weather Penetration without SKE.

14.10.6.2.1. Lead commands “EXECUTE INADVERTANT WEATHER PENETRATION WITHOUT SKE” and then states base altitude, base heading and base airspeed at a minimum. Base altitude will be at or above ESA.

14.10.6.2.2. All aircraft immediately turn to base heading while beginning a climb to base altitude using 4 FPA (approximately 1,500 fpm) and capturing base airspeed.

14.10.6.2.3. Once established in the climb, element wingmen turn 30 degrees away from the base heading in the safest direction for 1 minute, and then return to base heading. At 210 KIAS, this establishes approximately a 0.5 NM in-trail separation and 1.8 NM lateral separation.

14.10.6.2.4. The last element in the formation levels at the base altitude; preceding elements stack at 500-foot intervals, with the first element occupying the highest altitude.

14.10.6.2.5. Set TCAS to TA and squawk 1200C (or as directed by SPINS or host nation guidance); Lead may consider squawking EMERGENCY if the situation dictates.

14.10.6.2.6. Avoid changing the base heading while in IMC.

14.10.6.2.7. If the formation is unable to reestablish visual conditions, Lead contacts ATC for a clearance.

14.10.7. Run-In and Slowdown. Do not initiate descent from the last enroute altitude until the following conditions are met:

14.10.7.1. Own position is positively known. **(T-3)**

14.10.7.2. Within 3 NM of DZ run-in course centerline, to include CAPS/SKE timing only wingmen. **(T-3)**

14.10.7.3. At or past the DZ entry point; to include wingmen for parallel descents. **(T-3)**

14.10.8. Drop Execution.

14.10.8.1. Overrunning aircraft must regain position by one minute prior to TOT, or a no drop will be executed. **(T-3)**

14.10.8.2. CDS Airdrop. Minimum spacing to drop CDS in formation is 6,000 feet. **(T-3)** Aircraft not dropping CDS and using 50 percent flaps may establish normal spacing following a CDS aircraft. **WARNING:** Attempting to regain position by only reducing power or airspeed places the aircraft in a nose high, low-power situation and may lead to a stall.

14.10.9. DZ Escape. Assembly altitude after the drop will comply with normal IFR enroute altitude restrictions. **(T-3)**

14.10.9.1. DZ Exit. A fixed point on the DZ escape flight path centerline, established during pre-mission planning, at which the formation will be at the minimum IFR enroute altitude. Calculate the exit point based upon three-engine performance at airdrop gross weight. This point will be planned no less than 4 NMs track distance beyond the DZ trailing edge.

14.10.10. SKE Recovery.

14.10.10.1. At least one pilot will not be in CAPS mode once established on the final approach segment for SKE instrument approaches. This does not preclude CAPS information from being displayed via the AMU.

14.10.10.2. The interval between aircraft on final is 6,000 feet desired, 5,000 feet minimum. **(T-3)**

14.10.10.3. International Civil Aviation Organization (ICAO) Approaches. There are no procedures for executing ICAO 45/180 and 80/260 procedure turn approaches, so these are flown single-ship only. **(T-3)**

14.10.11. Do not perform touch-and-go landings during formation recoveries. **(T-3)**

14.11. ICDS Formation Airdrop. All aircraft will fly to an individual JPADS-MP derived CARP. **(T-3)** If an aircraft is unable to calculate its own CARP using the JPADS-MP, a separate

aircraft can pass CARP coordinates provided that the load's flight station and weights are the same. Otherwise, the aircraft must build (or have ready) the other aircraft's load information in order to calculate an individual CARP and pass it back. **(T-3)**

14.12. Guided Container Formation Airdrop. All aircraft will fly to an individual JPADS-MP derived CARP or be within the Launch Acceptability Range (LAR). In addition, formation spacing must provide a minimum of 3 seconds spacing between the last bundle dropped from the previous aircraft and the first bundle dropped from subsequent aircraft. This is to prevent any bundles entangling as the bundles attempt to fly to the same point in space. Instead of flying formation to the JPADS- MP derived CARP, consider sending aircraft on different routing within the LAR. **(T-3)**

14.13. C-130H/J Interfly Procedures. C-130H/J aircraft interfly procedures will be IAW AFTTP 3- 3.C-130J [Attachment 9](#).

14.14. Mission Debriefing and Critique. A complete mission debriefing will be conducted following the mission IAW the MAF Debriefing Guide.

Chapter 15

AIRDROP

15.1. General. This chapter provides general guidance for C-130J airdrop operations. For additional airdrop guidance not covered in this AFMAN, reference AFTTP 3-3.C-130J, technical order guidance and applicable tactics bulletins.

15.2. Identification of Airdrop Items. It may be necessary to identify items that are not dropped or land off the DZ in unsecured areas.

15.2.1. Identify supplies or equipment by the following class numbering system:

15.2.1.1. Class I - Subsistence.

15.2.1.2. Class II - Individual equipment.

15.2.1.3. Class III - POL.

15.2.1.4. Class IV - Construction materials.

15.2.1.5. Class V - Ammunition (include the type):

15.2.1.5.1. Type "A" - Small arms.

15.2.1.5.2. Type "B" - Mortars.

15.2.1.5.3. Type "C" - Artillery.

15.2.1.6. Class VI - Personal demand items.

15.2.1.7. Class VII - Major end items (vehicles, howitzers, etc.).

15.2.1.8. Class VIII - Medical supplies.

15.2.1.9. Class IX - Repair parts.

15.2.1.10. Class X - Non-military programs (e.g. agricultural supplies).

15.2.2. Airdrop loads may also be identified by the following internationally recognized color coding system for combined operations:

15.2.2.1. Red - Ammunition and weapons.

15.2.2.2. Blue - Fuel and lubricants.

15.2.2.3. Green - Rations and water.

15.2.2.4. Yellow - Communications equipment.

15.2.2.5. White (or Red Cross on white background) - Medical supplies.

15.2.2.6. Black and white stripes - Mail.

15.3. Airdrop Kits. The loadmaster will carry enough equipment in the airdrop kit to satisfy load or mission requirements. Minimum contents of airdrop kits will include cloth-backed pressure sensitive tape, 1/2-inch tubular nylon cord, 550 cord, 5 cord, 80 pound cotton webbing, and two carabiners (NSN 4240-01295-4305 or equivalent carabiner with a locking mechanism). Additional items will be added per unit guidance. **(T-3)**

15.4. Joint Airdrop Inspection.

15.4.1. The loadmaster will complete the applicable DD Form 1748, *Joint Air Drop Inspection Records*, before takeoff (see AFJ 13-210 *Joint Airdrop Inspection Records, Malfunction/Incident Investigations, and Activity Reporting* for specifics) and verify the accuracy of cargo and troop documentation. **(T-3)** The Joint Airdrop Inspector (JAI) will check all applicable items for all loads to be dropped during that mission. **(T-3)** For loads that require in-flight rigging, the JAI will annotate on the DD Form 1748 which items are required to be completed during flight, and the aircrew loadmasters will ensure those items are completed and checked. **(T-3)** No further inspections by the JAI are required. Reject loads with inaccurate or unavailable weights, or loads hazardous to flight. **(T-3) Note:** Equipment not rigged per 13C-series technical orders (TO) or Joint Special Operations Command (JSOC) 350 series manuals, requires a waiver from the appropriate MAJCOM Tactics agency/division.

15.4.2. If airdrop and airland loads are carried at the same time, see the restrictions listed in **Table 15.1**. These restrictions are designed to prevent airland loads from interfering with airdrop rigging equipment.

Table 15.1. Load Planning Restrictions.

	RESTRICTIONS	MINIMUM DISTANCE (INCHES)
1.	Retriever winch cable/pulley from aircraft floor	84"
2.	Distance between anchor cables; (a) CDS or equipment (b) Personnel (1) Forward bulkhead (2) Intermediate supports	108" 6" Inboard, 64" Outboard 76" Inboard, 76" Outboard
3.	Airland cargo height	Cannot interfere with overhead rigging equipment CDS Only – 80" Height ²
4.	Cargo locations on personnel airdrops (static line or High Altitude Low Opening (HALO))	Troop door exit: no cargo between LS 857- 937/ FS 657- 737). Ramp exit: forward of LS 900 (FS 700).
5.	Passenger/personnel distance from airdrop rigging equipment	60"
6.	Safety aisle to rear of aircraft ³	All missions, alongside or over top of cargo.
7.	Access to operate airdrop equipment	Troop seats not used 1L and 2L.
NOTES:		

(1) Personnel airdrops may be performed with only one troop door configured for airdrop with user concurrence.

(2) Will not exceed 80" within 12" either side of retriever cable. Height of cargo outside of the 12" left and right (total 24") may exceed the 80" height limitation, but will not interfere with overhead rigging equipment. **(T-3)**

(3) CDS and heavy equipment configuration. Safety aisles for airdrop operations may not be feasible IAW AFMAN 11-2C-130JV3 Addenda A. Loadmasters will maintain access to the aft end of the aircraft during airdrop operations. All sidewall seats will be raised or stowed in the wheel-well area when airland pallets and vehicles are located within this area and exceed 96" width. **(T-3)**

(4) Loadmasters will maintain a clear pathway between the MFCD and platform(s) to ensure obstructions do not preclude required emergency procedure actions. **(T-3)** Heavy Equipment and Personnel configuration with platform(s)/jumpers on aircraft: Loadmasters will maintain access from MFCD to platform(s) for emergency equipment procedures. **(T-3)**

15.5. Verification and Marking of Airdrop Loads. A pilot will verify with the loadmaster that the actual number and type of parachutes, load weights, sequence of extraction, and position of loads in the aircraft agree with planned CARP data. If an individual load has a different type or number of parachutes from other loads, compute a CARP for each load to ensure all loads will land on the DZ. Base drop altitude on the item requiring the highest drop altitude. For training missions (e.g. unilateral, exercise, or JA/ATT) the loadmaster will coordinate with the pilots to ensure all equipment, drogues, CDS bundles, and standard airdrop training bundles are marked with the aircraft call sign and date. If more than one load is dropped on the same pass, mark loads with order of exit from aircraft. Markings will be placed on the extracted end of the load, and on the drogue line. **(T-3) Exception:** If more than one CDS bundle is dropped on the same pass, mark only the first container out.

15.6. Safety Equipment.

15.6.1. Low-Level Environment. Personnel required to be mobile in the cargo compartment during low-level phases will wear protective headgear from the combat entry point to the combat exit point if an actual threat is briefed. **Exception:** Personnel performing water jumps. All other personnel will be seated with the seat belt fastened. **(T-3)**

15.6.1.1. Airdrop. During an airdrop, occupants in the cargo compartment will have seat belt fastened. **(T-3)** Personnel required to be mobile will wear a restraint harness, or wear a parachute before doors are opened. For static line jumps, static lines are attached to anchor cables before doors are opened. The loadmaster will wear either a restraint harness or a parachute from the DROP PREPARATION Checklist until doors are closed and locked. Loadmasters will lower their helmet visor when near an open door (except when NVDs are used) and keep it lowered until doors are closed. As a minimum, the helmet will be worn from the start of the DROP PREPARATION Checklist until the COMPLETION OF DROP Checklist. Loadmasters will be on interphone from completion of DROP PREPARATION Checklist until COMPLETION OF DROP Checklist. **(T-3)** **WARNING:** During the aircrew briefing, the PIC will brief the loadmaster(s) when the mission profile requires flight below 800 feet AGL with the door(s) open. **(T-3)** **WARNING:** The loadmaster(s) must wear a restraint harness when performing duties near

an open exit above 25,000 feet MSL or below 800 feet AGL. **(T-3) Exception:** Flight examiner loadmasters are exempt from wearing a parachute or restraint harness while conducting flight evaluations provided they do not go aft of LS 977 (FS 677). **Exception:** Jumpers exiting on subsequent passes (racetracks) may stand and hook up with doors open if they are forward of the aft edge of the wheel wells LS 817 (FS 617). **NOTE:** Do not use restraint harness located on the flight deck for airdrops. **(T-3)**

15.6.2. When used, fit the restraint harness and adjust the lifeline before flight as follows:

15.6.2.1. Troop Door Drops. Prior to opening paratroop door, connect the hook to tiedown ring 32C-E (26C-E) and adjust the lifeline to allow mobility only to the troop door for installation of the paratroop retrieval strap/bar and to accomplish other emergency procedures. **(T-3)**

15.6.2.2. Troop Door SATB Drops. Connect the lifeline as described in [paragraph 15.6.3.1](#) or to a floor/ECHS rail tiedown ring at LS 977 (FS 677) and adjust to allow mobility only to the troop door being used. If mobility is required forward of the troop doors during troop door SATB drops the lifeline may be attached to a floor/ECHS rail tiedown ring at LS 837 (FS 637) and adjust to allow mobility only to the troop door being used. **(T-3)**

15.6.2.3. Ramp and Door Operations. Connect the hook to a floor/ECHS tiedown ring no further aft than LS 1017 (FS 737). Adjust the lifeline to allow mobility to LS 1115 (FS 835), and to a point that will preclude the wearer from exiting the aircraft. Restraint harness lifelines may be attached to an unused anchor cable provided the anchor cable stop is positioned and taped no further aft than LS 1017 (FS 737). Ensure tiedown ring used during airdrop is no further aft than the tiedown ring used when preflighting the restraint harness. **(T-3) WARNING:** Except for an actual contingency, towed trooper, or emergency that threatens the survivability of the aircraft and crew, the restraint harness will not be disconnected or lengthened to a point that would allow the loadmaster to fall outside the aircraft. **(T-3)**

15.6.3. Loadmasters will wear a life preserver unit (LPU) for operations over bodies of water when doors are open and a parachute is worn instead of a restraint harness. **(T-3)**

15.6.4. Airdrop safety personnel provide their own parachutes.

15.7. Airdrop Weather Minimums and Wind Restrictions. Refer to DAFMAN 13-217 and AFMAN 11- 231 for airdrop weather minimums and wind restrictions. SATB drops may be accomplished at less than 300 and 1/2 with Drop Zone Control Officer (DZCO) approval.

15.7.1. The following surface wind limits apply to LCLA/SATB airdrop: Actual LCLA airdrop is 17 knots, SATB airdrop is 25 knots.

15.8. Airdrop Time Advisories. The “twenty minute”, “ten minute”, “six minute”, “one minute”, “30 seconds”, and “five second” advisories are required for all personnel airdrops. Only the “one minute” and “five second” advisories are required for all other airdrops.

15.9. Navigation Accuracy.

15.9.1. For BLK 6.0 aircraft, to provide an early indication of degraded navigation accuracy, set the POS ALERT(s) at 0.03 NM (~ 55 yards; FOM 2) and 0.05 NM (~ 110 yards; FOM 4). If both INAV solution FOM's are less than or equal to 4 and no POS ALERTS (INAV Pos

Miscompare ACAWS/INAV Pos Difference ACAWS) are indicated, navigation airdrop accuracy (300 yd. CEP) is verified. If these conditions are not met, a radar or visual update is necessary to verify/improve navigation accuracy prior to performing airdrops. **(T-3) NOTE:** For BLK 6.0 aircraft, anytime a position bias (update) has been added to the EGI INAV solution, displayed FOM values do not reflect the result of the bias.

15.9.2. BLK 6.0 aircraft on all airdrops, verify navigation accuracy within 10 minutes of slowdown. Do not continue an airdrop without verifying the active ship solution if any of the following conditions exists: either FOM greater than 4, INAV Pos Miscompare ACAWS, or INAV Pos Difference ACAWS. **(T-3)**

15.9.3. BLK 8.1 aircraft have a variety of options for navigation modes for airdrop and it is important that crews understand the navigation sources at the time of execution and which airspace mode would be best to use for their airdrop. For example, if SBAS is available then CIVIL mode may be the best choice, whereas a contested environment requiring solution updates would make MISSION mode the best choice. For all airdrops, verify navigation accuracy within 10 minutes of slowdown. Set POS ALERT(s) to 0.05 and 0.07 but realize this only compares the current navigation solution to the unbiased EGI1 solution. If POS DIFFERENCE (A) or POS MISCOMPARE (C) are displayed crews should verify their ANP/TNP value is less than 0.07 (~140 yard error). If the ANP/TNP is not less than 0.07 the crew must change to MISSION Mode and execute a solution update.

15.9.3.1. For BLK 8.1 aircraft, MSN/EGI2 should be utilized in situations requiring a position update. (i.e GPS-denied environment or simulated environment for training). POS DIFFERENCE and POS MISCOMPARE messages will be unreliable and may not clear after an update has been executed.

15.9.3.2. For BLK 8.1 aircraft, if performing a visual/radar update for training, aircrew may opt to leave the GPS-sources on. With GPS-sources on, the unbiased EGI 1 will be accurate and the POS DIFFERENCE and POS MISCOMPARE messages will be reliable. This provides a feedback mechanism for the radar/visual update.

15.10. CARP XTK/VERT. Airdrops are not allowed if a CARP XTK or CARP VERT is displayed. **(T-3)** Exception: Continuing an airdrop with CARP XTK or CARP VERT displayed or performing a manual drop is permitted for Low-Cost Low-Altitude Pilot-directed airdrop or other airdrop methods described in section 7.3, Additional Airdrop Methods, of AFTTP 3-3.C-310J.

15.10.1. During low drift situations (3 degrees or less); if the wingman maintains the correct CAPS wing position and the lead aircraft is on the correct run-in, a CARP XTK advisory may result. Refer to AFTTP 3-3.C-130J for techniques to avoid this situation.

15.10.2. During contingency operations, the DIRMOBFOR or equivalent may approve manual drops (pushing green light switch based on visual reference to PI only) for increased flexibility of PI placement.

15.11. Airdrop Ballistics Data Entry in Mission Computer. All airdrop data entry in the CARP INIT pages will use the mission computer generated airdrop ballistics data without overwriting any data. **(T-3)** Only overwrite ballistics data in the following scenarios:

15.11.1. The parachute being used for airdrop is not available for selection in the mission computer.

15.11.1.1. Aircrews will select T-10C (static-line/non-driveable) or MT1-X (freefall/driveable) for personnel airdrops and G-14 for all others and overwrite the mission computer ballistics data with data from an authorized source (e.g. AMC Ballistics Data Tables, Approved For Use List, etc)

15.11.1.2. When conducting test operations (e.g. Yuma) with unknown ballistics data, aircrews will use conservative data for the load being airdropped (e.g. MC-4 for freefall personnel tests).

15.11.2. Weight and/or load station is beyond that of the mission computer's data

15.11.2.1. If the CARP INIT 2/5 load station is beyond the mission's computer's limit (e.g. CDS LS forward of 710), then the exit time is the only data that is required to be overwritten.

15.11.2.2. Heavy equipment exit times remain IAW TO 1-C130J-1.

15.11.2.3. Scenarios not addressed or ballistics data from unauthorized sources requires MAJCOM/A3 approval.

15.12. High Altitude Airdrop Requirements.

15.12.1. See AFMAN 11-409, *High Altitude Airdrop Mission Support Capability Program*, AFMAN 11-202V3, and applicable supplements for high altitude airdrop operations oxygen requirements (pre- breathe requirements and exposure limits, restrictions, Physiological Technician (PT) requirements, etc.).

15.12.2. The jumpmaster may dictate the use of supplemental oxygen by any or all jumpers at altitudes less than those listed. Parachutists transfer from aircraft oxygen system or portable oxygen console to personal oxygen system at approximately one minute before green light.

15.12.3. Pressurization Scheduling. Maintain cabin pressure at or below 10,000 feet until the Cabin Altitude Check and the Drop Preparation checklist (time for check may have to be adjusted) are complete. Depressurization will not exceed 3,000 feet per minute. Slower rates are recommended if time allows. Ensure zero pressure differential before opening doors.

15.13. High Altitude Airdrop Conduct of Operations.

15.13.1. For communications and signals, interphone and hand signals are the primary methods of communications. Written messages may be necessary in some instances to communicate with individuals not connected to the aircraft interphone. Loadmasters will carry a suitable writing utensil and medium to write out messages that cannot be dealt with by using hand signals. When dropping parachutists, the jumpmaster may monitor interphone. The loadmaster will coordinate all hand signals with the jumpmaster.

15.13.2. Crewmembers will wear parachutes or restraint harnesses in the cargo compartment any time the doors are open during high altitude airdrop operations. Safety harnesses are worn on airdrops conducted above 25,000 feet MSL. **Exception:** PTs may wear a parachute on drops above 14,000 feet MSL but will not position themselves near an open exit. LPUs must be worn with parachutes for operations over bodies of water with the doors open.

15.13.3. If an oxygen console is used, the loadmaster will be stationed aft of it to perform in-flight duties. The other loadmaster and physiology technician will be on interphone and normally forward of the oxygen console, if used, to perform in-flight duties. This arrangement will provide a buddy system to check everyone on oxygen.

15.13.4. Loadmasters should utilize the High Pressure Oxygen System (HPOS) on all airdrops above 10,000 feet MSL where extended mobility in an unpressurized aircraft is required beyond any standard oxygen hose provided. When properly preflighted, the HPOS may be used during any aircraft emergency requiring the use of supplemental oxygen. The HPOS will not be used as a source of oxygen for pre-breathing requirements, but may be transitioned to, once pre-breathing requirements have been satisfied.

15.13.5. Maintain interphone contact between the cockpit and the cargo compartment. Both loadmasters will be on interphone from completion of DROP PREPARATION Checklist until execution of the COMPLETION OF DROP Checklist and the cabin altitude is below 14,000 feet. The jumpmaster may also monitor interphone during high altitude personnel airdrops.

15.14. High Altitude Personnel Airdrop Procedures. *CAUTION:* Ensure any paratroopers remaining on-board de-arm their parachutes before cabin altitude descends below set parachute activation altitudes.

15.14.1. When parachutists exit from the ramp, all parachutists, with exception of the jumpmaster, will stand forward of the ramp hinge until the five-second advisory. One or both paratroop doors may be used in lieu of the cargo ramp. The ramp and door or paratroop door may remain open during racetracks if required, provided racetrack altitude is at or above a safe drop altitude and paratroopers are rigged for high altitude airdrops.

15.14.2. For jumpmaster-directed HALO drops, the green light may be turned on one minute prior to the release point. The PM will provide a standard “green light” call at the jointly agreed upon release point. User assumes responsibility for drop accuracy.

15.14.3. Detailed coordination with the jumpmaster will be conducted to determine the release point and appropriate red light time based on winds, jumper experience, and parachute capabilities. Normally, the jumpers will exit the aircraft at their own discretion; however, no jumpers should exit after the red light is turned on.

15.15. Emergency Parachutist Bailout.

15.15.1. Under satisfactory conditions with the T-11 parachute (static-line exit), the minimum acceptable emergency bailout altitude is 550 feet above the terrain. Other parachute systems may require higher altitudes. When using a parachute other than the T-11, the minimum bailout altitude will be briefed by the jumpmaster prior to the airdrop sortie, but will not, in any case, be lower than 550 AGL. When an aircraft emergency occurs during static-line airdrops, the PIC maintains an acceptable attitude and altitude for the parachutists to evacuate the aircraft. If the jump must be made at an airspeed in excess of 150 KIAS, advise the parachutists of the airspeed and altitude. Order evacuation by turning on the green light and giving the briefed alarm bell signals. **(T-3)**

15.15.2. Minimum emergency bail-out altitude for free-fall parachutists is 2,000 feet AGL. **(T-3)**

15.15.3. If conditions are unsuitable for aircraft evacuation, turn the red light on until exit doors are closed. The PIC advises the jumpmaster through the loadmaster to have the parachutists unhook, take their seats, and fasten seatbelts.

15.16. Airdrop Procedures. NOTE: Drop altitude limitations are listed in the current Approved Cargo Parachute and Personnel Ballistic Data spreadsheets.

15.16.1. Personnel Airdrops.

15.16.1.1. Loadmasters will ensure jumpmasters receive all time advisories, wind updates, and no-drop decisions when passed. **(T-3)**

15.16.1.2. The PIC and primary Loadmaster will conduct a Jumpmaster briefing with all Jumpmasters. **(T-3) WARNING:** Loadmasters will not position themselves directly under the center anchor cable supports (A-Frame, LS 937 (FS 737)) in case of anchor cable or support mounting failure. **(T-3) WARNING:** Loadmasters will not lower the paratroop doors on extended jump platforms in-flight. **(T-3)**

15.16.1.3. Personnel approved to accomplish ramp and door (tailgate) personnel airdrops are listed in AFTTP 3-3.C-130J, Chapter 7 and in AFMAN 11-420.

15.16.1.4. Troop Door Personnel Airdrop. When utilizing Towed Parachute Retrieval System (TPRS) to retrieve static lines or a towed parachutist, use of the Retrieval Assist Strap (RAS) is mandatory.

15.16.1.5. When the Loadmaster Crashworthy Seat (LMCWS) is installed, loadmasters will tape exposed bolt head, nuts and exposed threads on the upper LMCWS attachment bracket arm with clothbacked tape. Secure the hand hold straps with either 80lb cotton webbing or cloth backed tape to the seat back cylinder support.

15.16.2. Combination Airdrops. Combination airdrops are those during which parachutists exit from the aircraft ramp after equipment extraction or gravity release (CDS, CRRC, Container Ramp Bundle, etc.).

15.16.2.1. Restricted to single-ship or the last aircraft of an equipment or CDS formation, or the first aircraft of a personnel formation. **(T-3)** When tailgating parachutists, the drop altitude is determined by the item requiring the highest drop altitude per AFMAN 11-231. If an additional pass is required to drop all the personnel after a combination CDS drop, close the ramp and door and re-rig the static-line retriever cable as depicted in TO 1C-130J-9. **(T-3)**

15.16.2.2. Aircraft will compute a CDS or platform CARP and a personnel CARP.

15.16.2.2.1. Base drop airspeed on the CAS for the equipment and drop altitude on the highest required for the equipment or personnel. **(T-3)**

15.16.2.2.2. For BLK 6.0 aircraft, annotate the personnel release point (for ten seconds after the equipment release point) and associated PI on the DZ mosaic. **(T-3)** If the PI falls within 150 yards of the DZ boundary, the jumpmaster is the final approval authority.

15.16.2.2.3. Build the CNI-MU CARP for the CDS or platform using the higher of the equipment or personnel minimum altitude for MIN DROP AA. Use the CNI-MU-generated RED LIGHT time to identify the parachutists' end of usable DZ. **(T-3)**

15.16.2.2.4. For BLK 8.1 aircraft, the combo drop function will shift the PI of the targeted load if the non-targeted load is forecast to land less than 150 yards from the DZ boundary. This shift can occur at any time prior to GREEN LIGHT so crews must use caution when using this option during the execution phase since it may not be possible to alert the jumpmaster to the shifted PI prior to the release point.

15.16.2.2.4.1. For BLK 8.1 using the combo drop function, the jumpmaster will be briefed and required to approve the use of a shifted PI during all combo drops. **(T-3)** If the jumpmaster does not approve the use of a shifted PI, any CNI-MU Advisories indicating a shifted PI will result in a NO DROP. **(T-3)**

15.16.3. Door Bundle Airdrops. Door bundle airdrops will be accomplished IAW AFTTP 3-3.C-130J.

15.16.4. Heavy Equipment Airdrops. Crews will be thoroughly familiar with both towplate and non-towplate procedures. Only equipment rigged in accordance with 13-C series TOs or JSOC 350 series may be airdropped. **(T-2)** The maximum airdrop load to be extracted over the ramp is 42,000 pounds. The aerial delivery unit supporting the load movement ensures current publications are available for loadmaster reference during joint airdrop inspections.

15.16.5. CDS Airdrops.

15.16.5.1. Loadmasters are permitted to pull down sharply with a gloved hand or on a nylon strap looped over the static-line retriever winch cable to assist the cut of the release gate. Loadmasters may pull on the cable after hearing and seeing "GREEN LIGHT".

15.16.5.2. Manual CDS gate cuts are authorized for all CDS/ICDS/JPADS single-stick airdrops (CVR or non-CVR) and ramp bundles. A manual gate cut is defined as using a knife to cut/release the CDS/intermediate gates. Loadmasters will ensure they hear and see "GREEN LIGHT" before manually cutting the CDS/intermediate release gate. **(T-3)** Loadmasters are allowed to go aft of the buffer stop/alternate forward barrier to manually cut the release gate. Exercise caution to remain clear of any bundles in the event of an emergency. Manual gate cuts may be performed with CDS loaded into both sides of the CVR, as long as the bundles are released one stick at a time, and the loadmaster has adequate space to remain clear on the opposite side of the exiting CDS. **WARNING:** Double stick CDS released simultaneously will be accomplished via WGRS or cut via the static-line retriever. **(T-3)** **WARNING:** Loadmaster will not cut release gates while in the paratroop doors next to the exiting CDS. **(T-3)**

15.16.5.3. All CDS airdrops at or above 3,000 feet AGL are normally conducted with high-velocity (HV) parachutes. When necessary for operational missions, airdrops at or above 3,000 feet AGL may be accomplished with low-velocity (LV) parachutes with prior coordination through C2 channels with concurrence of the user and aircraft commander. The user must understand accuracy utilizing low-velocity parachutes above 3,000 feet AGL will be diminished and accept responsibility for final bundle condition and potential diminished accuracy of airdrop loads.

15.16.5.4. All loads dropped at or above 10,000 feet MSL will be rigged with break-away static lines. JPADS loads will be rigged with release-away static lines. **(T-2)**

15.16.5.5. LCADS-HV airdrops.

15.16.5.5.1. Use minimum DZ size for a 26-foot ring-slot parachute. **(T-2)**

15.16.5.5.2. LCADS-HV parachutes are factory-rigged in a break-away static line configuration regardless of drop altitude. Failure to use break-away static lines will result in damage to the aircraft. The static line break tie will be gutted Type III nylon (550) cord for all LCADS-HV parachutes. JAI must be vigilant to ensure proper static line configuration, including anti-oscillation ties. **(T-3)**

15.16.5.6. LCADS-LV airdrops.

15.16.5.6.1. LCADS-LV is authorized for use with the JPADS mission planner using LCADS-LV data incorporated into the mission planner. When dropping LCADS-LV without using the JPADS mission planner, use ballistics from the most current ATTILA memorandum for "Computed Air Release Point (CARP) data for LCADS Low Velocity (LOW-V) Parachute". **(T-2)**

15.16.5.6.2. LCADS-LV airdrops will use break-away static lines regardless of altitude. The static line break tie will be full strength Type III nylon (550) cord for all LCADS-LV parachutes. Use of gutted Type III cord will result in chute deployment failure. JAI must be vigilant to ensure proper static line configuration, including anti-oscillation ties. **(T-2)**

15.16.5.6.3. The minimum DZ size for LCLA during training is the same as CDS minimum DZ size computed IAW DAFMAN 13-217.

15.16.6. ICDS and JPADS Airdrops. ICDS and JPADS operations are conducted using the GPS Retransmission Subsystem (GPS-RTS), UHF Dropsonde Receiver Subsystem (UHF-DRS), and the JPADS Mission Planner (JPADS-MP) software. ICDS are CDS loads rigged with non-steerable chutes; JPADS operations are conducted using steerable chutes with autonomous guidance units (AGUs). Aircrew will use the appropriate JPADS checklists located on the AMC/A3V Publications webpage and in TO 1C-130J-1. **(T-3)**

15.16.6.1. JPADS certified POs are authorized to use the JPADS mission planner and software to calculate release points for JPADS/ICDS airdrop operations. The PO will determine a revised CARP using dropsonde data (if required), and will advise the crew of the updated release point. After the JPADS-MP produces the updated CARP it is entered into the Mission Computer. The PM and PO will verify the CARP and all airdrop parameters are entered correctly into the navigation system. For verification, the PO will read the JPADS-MP computed release point coordinates directly from the JPADS-MP while the PM verifies the same information is in the aircraft navigation system. **(T-3)**

15.16.6.2. The PO or mission planner is required to provide JPADS-MP derived CARP(s) for each airdrop pass and a completed Airdrop Damage Estimate (ADE) prior to an airdrop mission. Both pilots will review preflight CARP(s)/ADE for each respective airdrop. Use the approved checklist for dropsonde and ICDS/JPADS airdrops. During the dropsonde release, use of zero flaps at speeds between 170 – 180 KIAS is required to preclude dropsonde tail strikes. Loadmasters should release the dropsondes from the corners of the cargo ramp. **(T-3)**

15.16.6.3. Airdrop Damage Estimate (ADE). Units must perform a full airdrop damage assessment prior to JPADS/ ICDS airdrops. **(T-3)** The ADE must be coordinated and

approved by the area controlling agency. **(T-2)** Coordinate with the owning agency of the restricted airspace or controlled airspace and landowners with property surrounding the DZ for all JPADS/ICDS operations. Examine the area in the vicinity of the DZ for potential damage or hazards in the course of normal operations or during extraordinary system failure events. If the ADE demonstrates potential damage or hazards restrict airdrop release LAR, lower the drop altitude, change the run-in, change parachute type or cancel operations. **(T-3)** Inform the controlling unit of the risk to their operations; the controlling unit, and the Joint Force Controller (JFC) designated agency are approving authorities for risk to the area surrounding the DZ. Intelligence personnel are responsible for providing the JFC-designated agency close-up and overview imagery to facilitate ADE. For actual JPADS training drops, AMC units are required to contact their Wing Tactics two weeks prior in order to ensure all planning, coordination and reviews/assessments have been accomplished. **(T-3)** Operations conducted at Yuma Proving Ground under JPADS related test plan do not need Air Mobility Command/Combat Operations Division-Tactics (AMC/A3TW) review. See AFTTP 3-3.C-130J and DAFMAN 13-217 for further information. The ADE must include, at a minimum, a review of the airspace and ground space with respect to:

15.16.6.3.1. CARP and LAR location. Actual JPADS training airdrops must be conducted entirely within a restricted area. **(T-3)**

15.16.6.3.2. ICDS success ellipses. **(T-3)**

15.16.6.3.3. Chute failure footprints. **(T-3)**

15.16.6.3.4. Guidance failure footprints. **(T-3)**

15.16.6.4. IMC/VMC day/night airdrops are authorized for contingency operations. CONUS training operations are required to comply with FAR 105, *Parachute Ops* restrictions. **(T-0)** Drops conducted through or originating from IMC are only authorized from within or above an active restricted area. JPADS parachutes will not be dropped through severe turbulence or severe icing. **(T-2)**

15.16.6.5. When dropping JPADS, dropsondes are not required. When dropping near the edge of the Launch Acceptability Range (LAR) or in strong/variable wind conditions, dropping a dropsonde is recommended to improve the drop solution and reduce risk.

15.16.6.6. For BLK 6.0 ICDS and JPADS operations, a GPS FOM 3 or less is required. **(T-3)** For BLK 8.1 ICDS and JPADS operations, an ANP/TNP of 0.04 is required. **(T-3)**

15.16.6.7. Wind Limits. Wind limitations are unrestricted for dropsonde operations, and 17 knots for JPADS Ultra Light Weight (ULW)/2K-M/10K. **(T-2)**

15.16.6.8. Altitude and Weight Limits.

15.16.6.8.1. JPADS 2K/2K-M operations conducted from 5,000 feet AGL to 24,500 feet MSL have a weight range of 850 to 2,280 lbs rigged weight. Training payloads may be dropped as low as 3,500 feet AGL. When dropping 3,500 to 5,000 feet AGL, payload weights will be within 1,380 to 1,780 lbs rigged weight.

15.16.6.8.2. JPADS 10K operations conducted from 5,000 feet AGL to 24,500 feet MSL have a weight range of 5,000 to 10,000 lbs rigged weight. Training payloads may be dropped as low as 3,500 feet AGL.

15.16.6.9. DZ Size. DZ size criteria for JPADS and ICDS drops during contingency operations is at the discretion of the user. DAFMAN 13-217 DZ size restrictions apply during training.

15.16.6.10. JPADS Guided Footprint Locations. During normal training operations a JPADS DZ, CARP, chute failure footprint and guidance failure footprint will be located within a restricted airspace. If winds force the CARP outside of restricted airspace, additional coordination with ATC is required prior to airdrop operations. This includes coordination with the ATC agency, filing a Notice to Airmen (NOTAM), and ensuring airspace is clear for the entire guided system's flight profile from the drop altitude to the ground. **(T-2)**

15.16.6.11. During normal training operations the ICDS success footprint will be located within the surveyed DZ boundaries. The chute failure footprint must fall within restricted airspace. If outside of a restricted airspace the chute failure must fall on the surveyed DZ. If operating in a restricted area and winds force the CARP outside of restricted airspace coordination with ATC is required prior to airdrop operations. This includes coordination with the ATC agency, filing a NOTAM and ensuring airspace is clear from the drop altitude to the ground. **(T-2)**

15.16.6.12. JPADS Military GPS (MILGPS) Procedures. Follow MILGPS keying procedures contained in TO 13C7-49-61 and TO 137-49-51. The JPADS contains a Selective Availability Anti-Spoofing Module (SAASM) Global Positioning System (GPS) within the guidance unit (referred to as "JPADS MILGPS"). The JPADS MILGPS is located within the Avionics Module for the ULW/2K-M. The JPADS 10K MILGPS is located in a separate enclosure compartment. The JPADS MILGPS is approved to receive crypto-variable GPS keys and is an UNCLASSIFIED but controlled item and must be handled to preclude unauthorized access, tampering, theft, or loss. Due to the general application and associated security protocols, black GPS keys will be used. **(T-2) NOTE:** Keying and unkeying requires the MILGPS to be installed in a powered ON AGU. The AGU LCD screen should update within 20 seconds and should read MILGPS Keyed or Unkeyed. Once complete, power OFF the AGU. The PO will remove and return the enclosure to the unit's tactics office. **(T-3)**

15.16.6.12.1. When programing JPADS guidance units, the following items are the most critical and must be verified after the final data transfer, or at any point prior to the airdrop:

15.16.6.12.1.1. The intended impact point coordinates in latitude/longitude or MGRS ("LAT/LON" or "MGRS"). **(T-3)**

15.16.6.12.1.2. The elevation of the intended impact point ("IP Elev"). Ensure use of the correct PI from the current Drop Zone survey is crucial to system navigation. **(T-3)**

15.16.6.12.1.3. The JPADS parachute type used ("Canopy"). **(T-3)**

15.16.6.12.1.4. Total rigged weight of the airdrop load ("Weight"). **(T-3) NOTE:** The transfer of the mission file from the JPADS Mission Planner is not necessary if all programmed information within the guidance unit has been reviewed and validated as correct.

15.16.6.13. Jettison of JPADS guidance units with Military GPS (MILGPS). Instances of jettison of the JPADS MILGPS must be reported to the GPS Controlling Authority (CA). Each such report shall include the JPADS SAASM GPS serial number and must state whether the system was keyed or unkeyed. If unable to obtain the serial the number, the number was previously recorded on the DD Form 1748-5, *Joint Airdrop Inspection Record (Platforms)* during the JAI Inspection. Reporting shall be completed using the form contained in TO 13C7-49-61 and submitted to US Army Soldier Systems Center, Assistant Product Manager, Cargo Aerial Delivery Systems Team, Product Manager Force Sustainment Systems (PM FSS) SFAE- CSS-FP-F, 10 General Greene Avenue, Natick, MA 01760-5057. **(T-2) NOTE:** Time permitting, the LM with concurrence from the PIC or PO will remove the Avionics Module/enclosure from the JPADS prior to load jettison. **(T-3)**

Chapter 16

AEROMEDICAL EVACUATION (AE)

16.1. Mission. This chapter applies to Air Force C-130J Aircrews, AE Aircrews and all management levels concerned with operations of the C-130J aircraft. All operators involved in AE missions on C-130J aircraft will use AFMAN 11-202V3, this AFMAN, and AFTTP 3-3.C-130J.

16.1.1. C-130J aircraft may be used for AE transport of ill or injured DoD members and their dependents. These AE missions may be directed at any time by C2 agencies. AE personnel will utilize the procedures in applicable AFMAN 11-2AEV3, *Aeromedical Evacuation (AE) Operations Procedures* and applicable publications, in conjunction with this publication, to accomplish the AE mission.

16.2. Aircraft Configuration.

16.2.1. A five (5) high configuration using the center seat and litter stanchions is approved for all AE missions.

16.2.2. The seat and litter stanchion ladder will be installed for all AE missions when cargo requirements permit. **(T-3)**

16.2.3. Litter support straps will be secured to the aircraft floor prior to takeoff. If litters are not in the tier, loose litter support straps will be secured in a top and bottom litter support bracket on the center seat and litter stanchion. This will remove a free-swinging strap hazard. **(T-3)**

16.2.4. For patient comfort and to permit in-flight rest for patients use the following for missions length exceeding 4 hours in duration:

16.2.4.1. Minimum of 2 litter spaces should be available for ambulatory patients.

16.2.4.2. One seat must be reserved for every 3 litter patients. **(T-1)**

16.2.5. Space for an emergency litter will be available on all AE missions. **(T-1)**

16.2.6. Aircraft Anti-Skid tape will be installed and in good condition. **(T-2)**

16.3. Floor Loading Procedures.

16.3.1. Floor loading of patients is authorized for all contingency operations when a time critical environment exists (e.g. non-secure landing zones, areas faced with enemy siege/hostile fire, humanitarian reasons, etc.), and minimum ground time is essential. Floor loading procedures can be practiced/trained during Aeromedical Readiness Missions (ARM), joint training operations, exercises, etc. The cargo/ramp floor will be configured with all rollers stowed (cargo permitting). Maximum altitude for floor loaded patients is FL350. Patients will have an EPOS pre-positioned on their litter when floor loaded. **(T-1)**

16.3.1.1. Ambulatory Patients. If available, any cushioning material may be used for seating, to prevent the patient from having to sit on the cargo floor. Seat ambulatory patients so they face forward in the aircraft. **(T-2)** Attach a cargo tiedown strap for each row of patients, in a manner that it will provide forward restraint and body stability. **(T-1)** See TO 1C-130J-9 for proper use of the tiedown device.

16.3.1.2. Litter Patients. Refer to AFMAN 11-2AEV3 Addenda A for securing litter patients.

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Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFI 33-322, *Records Management and Information Governance Program* 23 March 2020

AFTTP 3-3.C-130J, *(U) Combat Aircraft Fundamentals C-130J*, 23 October 2020

AFPD 11-2, *Aircrew Operations*, 31 January 2019

AFMAN 11-202V3, *Flight Operations*, 10 June 2020

AMCI 11-208, *Mobility Air Forces Management*, 08 February 2017

AMCI 11-211, *Destination Airfield Suitability Analysis*, 08 June 2020

AFI 11-215, *Flight Manuals Program*, 25 March 2019

AFI 11-301 V1, *Aircrew Flight Equipment(AFE) Program*, 10 October 2017

AFMAN 11-2C-130J Addenda A, *C-130J Operations Configuration/Mission Planning*, 19 December 2019

AFMAN 11-218, *Aircraft Operations and Movement on the Ground*, 4 April 2019

AFMAN 11-230, *Instrument Procedures*, 24 July 2019

AFMAN 11-231, *Computed Air Release Point Procedures*, 18 November 2020

AFI 11-289, *Phoenix Banner, Silver, Copper Operations*, 25 November 2020

AFI 11-290 AMC Supplement, *Cockpit/Crew Resource Management Program*, 26 May 2020

AFMAN 11-2C-130JV1, *C-130J Aircrew Training*, 12 September 2019

AFMAN 11-2AEV3, *Aeromedical Evacuation (AE) Operations Procedures*, 18 August 2020

DAFMAN 11-401, *Aviation Management*, 27 October 2020

AFMAN 11-409, *High Altitude Airdrop Mission Support Capability Program*, 19 November 2020

AFI 13-207, *Preventing and Resisting Aircraft Piracy (Hijacking) (CUI)*, 04 February 2019

AFI 13-210(I), *Joint Airdrop Inspection Records, Malfunction/Incidents, Investigations and Activity Reporting*, 22 June 2009

DAFMAN 13-217, *Drop Zone and Landing Zone Operations*, 21 April 2021

AFI 21-101, *Aircraft and Equipment Maintenance Management*, 15 January 2020

AFI 31-101, *Integrated Defense (ID)*, 25 March 2020

AFI 33-324, *The Air Force Information Collections and Reports Management Program*, 22 July 2019

DAFI 33-360, *Publications and Forms Management*, 1 December 2015

AFPAM 11-216, *Air Navigation*, 28 February 2018

DOD 4515.13R, *Air Transportation Eligibility*, 22 January 2016

TO 13A1-1-1, *Repair, Cleaning, Inspection, And Testing of Aircraft Safety Belts, Shoulder Harness, and Miscellaneous Personnel Restraint Equipment*, 5 June 2020

TO 1C-130J-6CF-1, *Acceptance or Functional Check Flight Procedure*, 1 July 2020

TO 1-1-300, *MX Operational Checks and Check Flights*, 15 March 2012

TO 12S10-2AVS9-2, *Technical Manual Image Intensifier Set, Night Vision Type AN/AVS-9*, 11 June 2008

TO 1C-130J-2-09JG-10-1, *Ground Handling*, 1 January 2019

TO 1C-130J-5-1, *Sample Basic Weight Checklist*, 1 July 2020

TO 1C-130(C)J-5-1, *Sample Basic Weight Checklist*, 1 July 2020

TO 1C-130J-5-2, *Loading Data Manual*, 1 July 2020

TO 1C-130(C)J-5-2, *Loading Data Manual*, 1 July 2020

FAR 105, *Parachute Operations*

Code of Federal Regulations (CFR) Title 14, Part 1; *Definitions and Abbreviations*

DoD Flight Information Publication, General Planning, current edition, 4 June, 2004

Joint Pub 1-02, *The DoD Dictionary of Military and Associated Terms*, Nov, 2010

Adopted Forms

AMC Form 43, *AMC Transient Aircrew Comments*

AMC Form 54, *Aircraft Commander's Report on Services/Facilities*

AMC Form 4031, *CRM/TEM Skills Criteria Training/Evaluation*

AMC IMT 97, *AMC In-Flight Emergency and Unusual Occurrence Worksheet*

AF Form 8, *Certificate of Aircrew Qualification*

AF Form 673, *Air Force Publication/Form Action Request*

AF Form 1631, *NATO Travel Orders* (when required)

AF Form 4327a, *Crew Flight (FA) Authorization* (or MAJCOM prescribed according to DAFI 11-401, *Flight Management*)

AF IMT 15, *United States Air Force Invoice*

AF IMT 315, *United States Air Force AvFuels Invoice*

AF IMT 457, *USAF Hazard Report*

AF IMT 651, *Hazardous Air Traffic Report (HATR)*

AFTO IMT 781, *ARMS Aircrew/Mission Flight Data Document*.

AFTO Form 781H, *Aerospace Vehicle Flight Status and Maintenance Document*

AF IMT 1297, *Temporary Issue Receipt*

AF IMT 3211, *Customer Comments*

AF IMT 711B, *USAF Mishap Report*

AF IMT 4075, *Aircraft Load Data Worksheet*

AFTO Form 781A, *Maintenance Discrepancy and Work Document*

CBP Form 6059B, *US Customs and Border Protection Declaration Form*

CBP Form 7507, *General Declaration (Outward/Inward)*

DD 1351-2, *Travel Voucher or Sub Voucher*

DD 1351-2C, *Travel Voucher or Sub Voucher (Continuation Sheet)*

DD 1748-2, *Airdrop Malfunction Report (Personnel-Cargo)*

DD 2131, *Passenger Manifest*

DD 364-5, *Forms F*

DD Form 1801, *International Flight Plan*

DD Form 1748, *Joint Air Drop Inspection Records*

DD Form 1748-5, *Joint Airdrop Inspection Record (JPADS - Gravity)*

DD Form 1610, *Request and Authorization for TDY Travel of DoD Personnel*

SF 44, *Purchase Order-Invoice-Voucher*

Japanese Customs Service Forms

USAF Form 70, *Pilot's Flight Plan and Flight Log*

Abbreviations and Acronyms

A-PATH—Along Path

AAIM—Aircraft Autonomous Integrity Monitoring

ABFDS—Aerial Bulk Fuel Delivery System

AC—Aircraft Commander

ACARS—Aircraft Communications Addressing and Reporting System

ACF—Acceptance Check Flight

ACM—Additional Crew Member

ACAWS—Advisory, Caution and Warning System

ACBRN—Aircrew Chemical, Biological, Radiological, Nuclear

ADE—Airdrop Damage Estimate

ADS—Aerial Delivery System

ADS-B—Automatic Dependent Surveillance-Broadcast

ADS-C—Automatic Dependent Surveillance-Contract

AE—Aeromedical Evacuation
AFCS—Automatic Flight Control System
AFE—Aircrew Flight Equipment
AFI—Air Force Instruction
AFLCMC—Air Force Life Cycle Management Center
AFMAN—Air Force Manual
AFMC—Air Force Material Command
AFPAM—Air Force Pamphlet
AFPD—Air Force Policy Directive
AFTTP—Air Force Tactics, Techniques, and Procedures
AFR—Air Force Reserve
AGL—Above Ground Level
AGU—Autonomous Guidance Unit
AMAX—Adjusted Maximum Effort
AMC—Air Mobility Command
AMCI—Air Mobility Command Instruction
AMU—Avionics Management Unit
ANP—Actual Navigation Performance
AOA—Angle of Attack
AOC—Air Operations Center
AP—Auto Pilot
APOD—Aerial Port of Debarkation
APU—Auxiliary Power Unit
APV—Approach with Vertical Guidance
ARM—Aeromedical Readiness Mission
ARTCC—Air Route Traffic Control Center
ASRR—Airfield Suitability and Restrictions Report
A/T—AutoThrottle
ATA—Actual Time of Arrival
ATC—Air Traffic Control
ATCS—Automatic Thrust Control System
ATOC—Air Terminal Operations Center

ATTLA—Air Transportability Test Loading Agency
ATIS—Automatic Terminal Information Service
BARO—Barometric
BRNAV—Basic Area Navigation Airspace
C2—Command and Control
CAT I—Category I Approach/Nav Route
CAT II—Category II Approach/Nav Route
CARP—Computed Air Release Point
CAPS—Coordinated Airplane Positioning System
CDI—Course Deviation Indicator
CDS—Container Delivery System
CDT—Crew Duty Time
CFL—Critical Field Length
CFP—Computerized Flight Plan
CGPS—Civil GPS
CHOP—Change of Operational Control
CNBP—Communication/Navigation/Breaker Panel
CNI—Communication/Navigation/Identification
CNI-MS—Communication/Navigation/Identification-Management System
CNI-MU—Communication/Navigation/Identification-Management Unit
CNI-SP—Communication/Navigation/Identification-System Processor
COMSEC—Communications Security
CONEMP—Concept of Employment
CONOPS—Concept of Operations
CONUS—Continental United States
CPDLC—Controller Pilot Data Link Communication
CRM—Crew Resource Management
CRM/TEM—Crew Resource Management/Threat and Error Management
CS—Concurrent Servicing
CSAT—Civil SATCOM
CSS—Chief Servicing Supervisor
CVR—Centerline Vertical Restraint

CVR—Cockpit Voice Recorder
DA—Decision Altitude
DAFI—Department of the Air Force Instruction
DAFMAN—Department of the Air Force Manual
DCU—Digital Crew Unit
DDA—Derived Decision Altitude
DFDR—Digital Flight Data Recorder
DH—Decision Height
DME—Distance Measuring Equipment
DMU—Digital Map Unit
DRS—Dropsonde Receiver System
DTED—Digital Terrain Elevation Data
DZ—Drop Zone
DZCO—Drop Zone Control Officer
ECB—Electronic Circuit Breaker
ECBU—Electronic Circuit Breaker Unit
ED—Engineering Dispositions
EFB—Electronic Flight Bag
EGI—Embedded Global Positioning System/Inertial Navigation System
EMI—Electromagnetic Interference
EMMU—External Mass Memory Unit
EPOS—Emergency Passenger Oxygen System
ERAA—Emergency Route Abort Altitude
ERO—Engine Running On/Offload
ESA—Emergency Safe Altitude
ETA—Estimated Time of Arrival
ETE—Estimated Time Enroute
ETP—Equal Time Point
FAA—Federal Aviation Authority
FADEC—Full Authority Digital Electronic Control
FAF—Final Approach Fix
FCF—Functional Check Flight

FCG—Foreign Clearance Guide

FCIF—Flight Crew Information File

FD—Flight Director

FDP—Flight Duty Period

FIH—Flight Information Handbook

FLIP—Flight Information Publication

FMS—Flight Management System

FOB—Forward Operating Base

FODS—Fire Overheat Detection System

FOD—Foreign Object Damage

FOM—Figure of Merit

FPA—Flight Path Angle

FPM—Flight Performance Module

FS—Flight Station

FSAF—First Suitable Airfield

FSS—Flight Service Station

FTU—Formal Training Unit

FS—Flight Station

GDSS—Global Decision Support System

GCAS—Ground Collision Avoidance System

GOLD—Global Operations Datalink

GPS—Global Positioning System

GW—Gross Weight

HALO—High Altitude Low Opening

HATR—Hazardous Air Traffic Report

HDD—Head Down Display

HDG—Heading

HF—High Frequency

HMIA—Hatch Mounted International Marine/Maritime Satellite Antenna

HPOS—High Pressure Oxygen System

HUD—Head Up Display

HV—High Velocity

IAP—Instrument Approach Procedure
IAS—Indicated Airspeed
IAW—In Accordance With
ICAO—International Civil Aviation Organization
ICS—Intercom Communication System
ICDS—Improved Container Delivery System
IFF—Identification Friend or Foe
IFR—Instrument Flight Rules
IL—Instructor Loadmaster
ILS—Instrument Landing System
IMC—Instrument Meteorological Conditions
INMARSAT—International Marine Maritime Satellite
IP—Initial Point/Identification Point/Instructor Pilot
IPRA—Independent Precision Radar Approach
ISA—International Standard Atmosphere
JOG—Joint Operations Graphic
JPADS—Joint Precision Aerial Delivery System
KIAS—Knots Indicated Airspeed
KTAS—Knots True Airspeed
KuSS—Ku band Spread Spectrum
LAR—Launch Acceptability Range
LCADS—Low Cost Aerial Delivery System
LCLA—Low Cost Low Altitude
LM—Loadmaster
LMCWS—Loadmaster Crashworthy Seat
LNAV—Lateral Navigation
LOW-V—Low Velocity
LP—Localiser Performance
LPU—Life Preserver Unit
LPV—Localizer Performance with Vertical Guidance
LS—Load Station
LSAF—Last Suitable Airfield

LSK—Line Select Key

LV—Low Velocity

LZ—Landing Zone

MAF—Mobility Air Forces

MAFPS—Mobility Air Force Planning system

MAJCOM—Major Command

MAX—Maximum Thrust

MC—Mission Computer

MCD—Medical Crew Director

MDA—Minimum Descent Altitude

MDS—Mission Design Series (e.g., C-130)

ME—Mission Essential

MEA—Minimum Enroute Altitude

MEL—Minimum Equipment List

MEP—Mission Essential Personnel

MFP—Master Flight Plan

MFCD—Multifunction Control Display

MGT—Measured Gas Temperature

MIDS-LVT—Multifunctional Information Distribution System Low Volume Terminal

MILGPS—Military GPS

ML—Mission Loadmaster

MNPS—Minimum Navigation Performance Specification

MOCA—Minimum Obstruction Clearance Altitude

MPC—Mission Planning Cell

MR—Mission Ready

MSL—Mean Seal Level

MTR—Military Training Route

NAF—Numbered Air Force

NAS—National Airspace

NAT HLA—North Atlantic High Level Airspace

NG—Gas Generator Speed

NIU—Nacelle Interface Unit

NM—Nautical Mile

NMR—Non-Mission Ready

NOTAM—Notice To Airmen

NP—Power Turbine Speed/Propeller Rotation Rate

NVD—Night Vision Device

OAT—Outside Air Temperature

OCONUS—Outside Continental United States

OEI—One Engine Inoperative

OI—Open Item/Operating Instruction

OPORD—Operation Order

OPLAN—Operation Plan

OPR—Office of Primary Responsibility

OROCA—Off Route Obstacle Clearance Altitude

ORTCA—Off Route Terrain Clearance Altitude

ORM—Operational Risk Management

PAA—Primary Assigned Aircraft

PADS—Precision Airdrop System

PBN—Performance Based Navigation

PCM—Passenger Compartment Monitor

PCMCIA—Personal Computer Memory Card International Association

PF—Pilot Flying

PFD—Primary Flight Display

PFPS—Portable Flight Planning Software

PIC—Pilot In Command

PIREP—Pilot Report

PMD—Portable Mission Display

PO—Precision Aerial Delivery System Operator

POC—Point of Contact

PM—Pilot Monitoring

PSP—Pierced Steele Planking

RA—Radar Altimeter/Resolution Advisory

RAIM—Receiver Autonomous Integrity Monitoring

RAS—Resolution Advisories
RCR—Runway Condition Reading
RNAV—Area Navigation
RRFL—Required Ramp Fuel Load
RNP—Required Navigation Performance
RSC—Runway Surface Condition
RTS—Retransmission Subsystem
RVR—Runway Visual Range
RVSM—Reduced Vertical Separation Minimum
SA—Situation Awareness
SAASM—Selective Availability Anti-Spoofing Module
SATB—Standard Airdrop Training Bundle
SATCOM—Satellite Communications
SBAS—Satellite-Based Augmentation System
SBU—Swift Broadband Unit
SCA—Self Contained Approach
SDP—Special Departure Procedure
SFO—Specilized Fueling Operation
SKE—Station Keeping Equipment
SLICC—Senior Leader In-transit Conference Capsule
SLOP—Strategic Lateral Offset Procedure
SPINS—Special Instructions
SRTM—Shuttle Radar Topography Mission
TA—Traffic Advisory
TACC—Tanker/Airlift Control Center
TACAN—Tactical Air Navigation System
TALPA—Takeoff and Landing Performance Assessment
TAR—Technical Advisory Request
TAWS—Terrain Awareness Warning System
TCAS—Traffic Collision Avoidance System
TERPS—Terminal instrument procedures
TNP—Tactical Navigation Performance

TOLD—Takeoff and Landing Data

TOT—Time Over Target

TPRS—Towed Parachutist Retrieval System

UHF—Ultra High Frequency

U.S.—United States

USAF—United States Air Force

VFR—Visual Flight Rules

VHF—Very High Frequency

VMC—Visual Meteorological Conditions

VMCA—Velocity-Minimum Control (Air)

VNAV—Vertical Navigation

VOR—VHF Omnidirectional and Radio Range

VVOD—Vector Vertical Obstruction Data

WAAS—Wide Area Augmentation System

WX—Weather

X-PATH—Cross-Path

Terms

Aeromedical Evacuation (AE)—Movement of patients under medical supervision between medical treatment facilities (MTFs) by air transportation.

Air Mobility Control Center (AMCC)—Provides global coordination of tanker and airlift for AMC and operationally reports to the 618 AOC (TACC). Functions as the AMC agency that manages and directs ground support activities and controls aircraft and aircrews operating AMC strategic missions through overseas locations.

Air Mobility Element (AME)—The air mobility element is an extension of the Air Mobility Command Tanker Airlift Control Center deployed to a theater when requested by the geographic combatant commander. It coordinates strategic airlift operations with the theater airlift management system and collocates with the air operations center whenever possible. Also called AME.

Air Route Traffic Control Center (ARTCC)—The principal facility exercising enroute control of aircraft operating under instrument flight rules within its area of jurisdiction. Approximately 26 such centers cover the United States and its possessions. Each has a communication capability to adjacent centers.

Air Traffic Control (ATC)—A service provided by an appropriate authority to promote the safe, orderly and expeditious use of the air transportation system and to maximize airspace utility.

Airfield Suitability and Restrictions Report (ASRR)—The ASRR and GDSS Airfield Database (AFD) products provide guidance and policy for AMC organic aircraft operations at airfields

worldwide by means of individual suitability assessments (Giant Reports). Per AFMAN 11-202V3, other MAJCOMS and services establish specific policy concerning applicability of the ASRR (and associated information) for their aircraft. The ASRR and AFD products are available to anyone with a GDSS account or on request from the AMC Airfield Suitability office (AMC/A3AS) at: Airfield.Helpdesk@us.af.mil.

Augmented Crew—Basic aircrew supplemented by additional qualified aircrew members to permit in-flight rest periods.

Bird Aircraft Strike Hazard (BASH)—An Air Force program designed to reduce the risk of bird strikes.

Block Time—Time determined by the scheduling agency responsible for mission accomplishment for the aircraft to arrive at (block in) or depart from (block out) the parking spot.

BLUE BARK—US military personnel, US citizen civilian employees of the Department of Defense, and the dependents of both categories who travel in connection with the death of an immediate family member. It also applies to designated escorts for dependents of deceased military members. Furthermore, the term is used to designate the personal property shipment of a deceased member.

Border Clearance—Those clearances and inspections required to comply with federal, state, and local agricultural, customs, immigration, and immunizations requirements.

Charge Medical Technician—AET responsible for ensuring completion of enlisted aeromedical crew duties.

Chart Update Manual (CHUM)—Manual issued each March and September (with monthly supplements) to update maps/charts with new information. It may reflect temporary or permanent information pending the next chart/map release.

COIN ASSIST—Nickname used to designate dependent spouses accompanying dependent children and dependent parents of military personnel reported missing or captured who may travel space available on military aircraft for humanitarian purposes on approval of the Chief of Staff, United States Army; Chief of Staff, United States Air Force; Chief of Naval Operations; or the Commandant of the Marine Corps.

Command and Control (C2)—The exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission.

Command and Control Center—Each C2 Agency provides supervision, guidance, and control within its assigned area of responsibility. For the purpose of this AFI, C2 Agencies include operations centers, command posts, air mobility elements, tanker airlift control elements (TALCE), air mobility control centers, and tanker task forces.

Contingency Mission—Mission operated in direct support of an OPORD, OPLAN, disaster, or emergency.

Critical Phase Of Flight—Takeoff, formation, low level (below MSA), airdrop (from DROP PREPARATION Checklist through COMPLETION OF DROP Checklist), approach, and landing.

Deviation—A deviation occurs when takeoff time is not within $-20/+14$ minutes of scheduled takeoff time. Scheduled takeoff time may be adjusted to make good a TOT/TOA. Notify controlling agency before takeoff to adjust the scheduled takeoff time.

Direct Instructor Supervision—Supervision by an instructor of like specialty with immediate access to controls (for pilots, the instructor must occupy either the pilot or copilot seat).

Digital Terrain Elevation Data (DTED)—A matrix of terrain elevation values that provides landform, slope, elevation, and/or terrain roughness information.

Director, Mobility Forces (DIRMOBFOR)—When established, the director of mobility forces serves as the designated agent for all air mobility issues in the area of responsibility or joint operations area, and for other duties as directed. The director of mobility forces exercises coordinating authority between the air operations center (or appropriate theater command and control node), the tanker airlift control center, the air mobility operations control center (when established and when supporting subordinate command objectives), and the joint movement center, in order to expedite the resolution of air mobility issues.

Distinguished Visitor (DV)—Passengers, including those of friendly nations, of star or flag rank or equivalent status, to include diplomats, cabinet members, members of Congress, and other individuals designated by the DoD due to their mission or position (includes BLUE BARK and COIN ASSIST).

Diverse Departure—The airfield has been assessed for departure by TERPS personnel and no penetration of the obstacle surfaces exist. An aircraft may depart the field, climb to 400 feet above the departure end of the runway elevation, turn in any direction, and if a minimum climb gradient of $200'$ /NM is maintained be assured of obstacle clearance. This is normally indicated on DoD/NOAA publications by the absence of any published departure procedures.

Due Regard—Operational situations that do not lend themselves to International Civil Aviation Organization (ICAO) flight procedures, such as military contingencies, classified missions, politically sensitive missions, or training activities. Flight under "Due Regard" obligates the military aircraft commander to be his or her own air traffic control (ATC) agency and to separate his or her aircraft from all other air traffic. (See FLIP General Planning, section 7.)

DZ Entry Point—A fixed point in the IFR Drop Corridor where an aircraft or formation may safely begin descent from IFR enroute altitude or a segmented altitude to IMC drop altitude. The DZ entry point is a maximum of 40 NM before the DZ exit point according to Federal Aviation Administration FAR exemption 4371C. Formation descent will not begin until the last aircraft in formation is at or past the DZ entry point.

DZ Exit Point—A fixed point on the DZ escape flight path centerline, established during pre-mission planning, at which the formation will be at the minimum IFR enroute altitude. Calculate the exit point based upon three-engine performance at airdrop gross weight. This point will be planned no less than 4 NMs track distance beyond the DZ trailing edge.

Egress—The route portion from the last objective to the planned recovery base.

Equal Time Point (ETP)—Point along a route at which an aircraft may either proceed to First Suitable Airfield (FSAF) or return to Last Suitable Airfield (LSAF) in the same amount of time based on all engines operating. FSAF/LSAF are airports closest to the coast-out and coast-in route of flight that meet applicable destination alternate requirements.

Execution—Command-level approval for initiation of a mission or portion thereof after due consideration of all pertinent factors. Execution authority is restricted to designated command authority.

Familiar Field—An airport in the local flying area at which unit assigned aircraft routinely perform transition training. Each operations group commander will designate familiar fields within their local flying area.

First Suitable Airfield (FSAF)—The first suitable airfield available after completing the Category I route segment.

Formation—Two or more aircraft operating together as a single unit, where trailing aircraft follow and support a lead aircraft's navigation and communication, and are operating toward a common objective.

Global Decision Support System (GDSS)—AMC's primary execution command and control system. GDSS is used to manage the execution of AMC airlift and tanker missions.

Ground Time—Interval between engine shut down (or arrival in the blocks if engine shutdown is not scheduled) and next takeoff time.

Hazardous Cargo or Materials—Articles or substances that are capable of posing significant risk to health, safety, or property when transported by air and classified as explosive (class 1), compressed gas (class 2), flammable liquid (class 3), flammable solid (class 4), oxidizer and organic peroxide (class 5), poison and infectious substances (class 6), radioactive material (class 7), corrosive material (class 8), or miscellaneous dangerous goods (class 9). Classes may be subdivided into divisions to further identify hazard, e.g., 1.1, 2.3, 6.1, etc.

Home Station Departure—Departure from the permanently assigned base of an aircraft/crew

Ingress—The route portion from takeoff to the last objective.

Instructor Supervision—Supervision by an instructor of like specialty. For critical phases of flight, the instructor must occupy one of the seats or stations, with immediate access to the controls.

Joint Airborne/Air Transportability Training (JA/ATT)—Continuation and proficiency combat airlift training conducted in support of DoD agencies. Includes aircraft load training and service school support. AMC publishes JA/ATT taskings in AMC OPORD 17-76, annex C, appendix 1.

Jumpmaster—The assigned airborne-qualified individual who controls parachutists from the time they enter the aircraft until they exit. See also stick commander (air transport).

Last Suitable Airfield (LSAF)—The last suitable airfield available before beginning the Category I route segment.

Latest Descent Point—Latest planned point on the DZ run-in course where the formation plans to initiate descent to drop altitude. This is planned to ensure all aircraft in the formation are stabilized (on altitude and airspeed) before the drop.

Loading Time—Specific time established jointly by the commanders concerned when aircraft loading will begin. For paratroopers, 20 minutes before Air Force stations time.

Local Training Mission—A mission scheduled to originate and terminate at home station, generated for training or evaluation, and executed at the local level.

Maintenance Status—A1—No maintenance required; A2 – Minor maintenance required, but not serious enough to cause delay; A3 – Major maintenance; A4 – Aircraft or system has suspected or known biological, chemical, or radiological contamination; A5 – Aircraft or system has suspected or known battle damage.

Medical Crew Director (MCD)—Flight Nurse responsible for supervising patient care and AEMCs assigned to AE missions. On missions where a Flight Nurse is not onboard, the senior AET will function as MCD.

Military Training Route (MTR)—MTRs are developed for use by the military for low-altitude, high-speed training. FLIP contains descriptions of these routes. Nonparticipating aircraft are not prohibited from flying within the boundaries of a MTR; however, they are encouraged to exercise extreme vigilance and to contact FSS for route status when flying in the vicinity of a MTR.

Mission Contributing (MC)—Any degraded component, system, or subsystem, which is desired, but not essential to mission accomplishment.

Mission Essential (ME)—A degraded component, system, or subsystem, which is essential for safe aircraft operation or mission completion.

Mobility Air Force (MAF)—Forces assigned to mobility aircraft or MAJCOMs with operational or tactical control of mobility aircraft.

Modified Contour—Flight in reference to base altitude above the terrain with momentary deviations above and below the base altitude for terrain depressions and obstructions to permit a smooth flight profile.

Off Station Training Flight—A training flight that originates or terminates at other than home station that is specifically generated to provide the aircrew experience in operating away from home station. Off station trainers will not be generated solely to transport passengers or cargo.

Operational Control (OPCON)—Transferable command authority that may be exercised by commanders at any echelon at or below the level of combatant command. Operational control is inherent in combatant command (command authority). Operational control may be delegated and is the authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission. Operational control includes authoritative direction over all aspects of military operations and joint training necessary to accomplish missions assigned to the command. Operational control should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and Service and/or functional component commanders. Operational control normally provides full authority to organize commands and forces and to employ those forces as the commander in operational control considers necessary to accomplish assigned missions. Operational control does not, in and of itself, include authoritative direction for logistics or matters of administration, discipline, internal organization, or unit training.

Operational/Operationally Necessary Missions—All missions that are not designated as training specific missions are considered “operational” or “operationally necessary”. All 618 AOC and CVAM-tasks missions are considered operational/operationally necessary. A training mission will be considered operational/operationally necessary if external users (e.g. JA/ATT) are scheduled as part of the mission.

Originating Station—Base from which an aircraft starts on an assigned mission. May or may not be the home station of the aircraft.

Operational Risk Management—ORM is a logic-based, common sense approach to making calculated decisions on human, materiel, and environmental factors before, during, and after Air Force operations. It enables commanders, functional managers and supervisors to maximize operational capabilities while minimizing risks by applying a simple, systematic process appropriate for all personnel and Air Force functions.

Overwater Flight—Any flight that exceeds power off gliding distance from land.

Patient Movement Categories—Urgent – Patients who must be moved immediately to save life, limb, or eyesight, or to prevent complication of a serious illness; Priority – Patients requiring prompt medical care that must be moved within 24 hours; Routine – Patients who should be picked up within 72 hours and moved on routine/scheduled flights.

Permit to Proceed—Aircraft not cleared at the first US port of entry may move to another US airport on a permit to proceed issued by customs officials at the first port of entry. This permit lists the requirements to be met at the next point of landing, e.g. number of crew and passengers, cargo not yet cleared. Aircraft commanders are responsible to deliver the permit to proceed to the customs inspector at the base where final clearance is performed. (Heavy monetary fines can be imposed on the aircraft commander for not complying with permit to proceed procedures.).

Positioning and Depositioning Missions—Positioning missions are performed to relocate aircraft for the purpose of conducting a mission. De-positioning missions are made to return aircraft from bases at which missions have terminated.

Scheduled Takeoff Time—Takeoff time is established in the schedule or OPORD. For air aborts and diversions, this will be engine shut down time (or arrival in the blocks if engine shutdown is not scheduled) plus authorized ground time. Early deviation does not apply to aborts or diversions unless the mission is formally rescheduled by current operations.

Special Assignment Airlift Mission (SAAM)—Funded airlift that cannot be supported by channel missions because of the unusual nature, sensitivity, or urgency of the cargo or that requires operations to points other than the established channel structure.

Special Tactics Team (STT)—Team of Air Force personnel organized, trained, and equipped to establish and operate navigational or terminal guidance aids, communications, and aircraft control facilities in support of combat aerial delivery operations.

Stabilized Approach—Criteria that define specific parameters in order to mitigate the risk during this critical phase of flight.

Stabilization Point—Point on the DZ run-in course at which the lead aircraft should plan to be stabilized at drop altitude and airspeed. This point will be planned to be at least 6 NMs before the point of impact.

Stations Time—The time at which aircrews will have completed their pre-flight duties and be at their crew positions. Passengers will be seated and cargo will be secured.

Tactical Event—Airdrop, visual low level (day/NVD), formation (visual/SKE), assault landings/takeoffs, tactical approaches/departures, landings/takeoffs on an AMP-3/4 configured landing zones, and unimproved runway operations.

618 Airlift Operations Center (Tanker Airlift Control Center) (618 AOC (TACC))—The Air Mobility Command direct reporting unit responsible for tasking and controlling operational missions for all activities involving forces supporting US Transportation Command's global air mobility mission. The Tanker Airlift Control Center is comprised of the following functions: current operations, command and control, logistics operations, aerial port operations, aeromedical evacuation, flight planning, diplomatic clearances, weather, and intelligence. Also called TACC.

Terminal instrument procedures (TERPS)—MAJCOM TERPS office ensures each published instrument procedure is operationally acceptable for the command or unit mission to include evaluation and endorsement of each nonstandard procedure.

Terrain Charts—This includes both digital and paper charts.

Time Out—Common assertive statement used to voice crew member concern when safety may be jeopardized.

Training Mission—Mission executed at the unit level for the sole purpose of aircrew training for upgrade or proficiency. See definition of “Operational/Operationally Necessary Missions”.

Unilateral—Operations confined to a single service.

Unit Move—A mission airlifting military passengers or troops who originate from the same unit and onload point, are under the control of a designated troop commander and offload at the same destination.